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From the desk of editor-in-chief:

The pediatrics (like any other branch) is an ever evolving branch of medicine. We are in the era of evidence based scientific advances in the care of human health. Medico-legal and ethical issues are areas of hot discussion in research and practice of medicine. Many of us are engaged in academic / research activities related to child health so as to decrease the childhood mortality and morbidity. There are many hot and burning issues related to child health like nutrition, adolescence, immunization, child abuse, growth and development etc which need attention from various stake holders in the community.

It is said that no-body is too old to learn, but a lot of people keep putting it off. This journal is an attempt to provide an opportunity to those budding, enthusiastic and academically active graduates and postgraduates who are involved in the scientific research related to child health. The reward for work well done is the opportunity to do more. In future, we expect full cooperation, constructive criticism and significant contribution from all our friends, colleagues and well wishers. The three main task of editors are; compilation, editing and printing. The success of other two depends on the first. We hope that with the help, guidance and blessings of you all we can provide a good scientific food to the hungry brains engaged in the care of future generation of human being.

Being the first at anything violates one of the three basic rules of nature; never be first, never be last and never volunteer for anything. However, something has to be first and hence we start with this inaugural issue of the journal……

Editorial:
Breastfeeding during / after next pregnancy

***Dr Satish Tiwari, Dr R K Agarwal**

Infant feeding practices are the most important intervention to decrease the Under Five Mortality rates so as to achieve Millennium Development Goals. The Global Strategy for Infant and Young Child Feeding (IYCF) was adopted by WHO and UNICEF in 2002.(1) This has revitalized the current knowledge and practices related to Infant Feeding all over the world. A healthy start in the life is one of the most precious gifts one can give to the newborn child. Food and nutrition are one of the basic needs/ rights of any individual. But, still there are many misconceptions regarding it since so many years. There are many myths, misconceptions and confusions related to tandem nursing. If a woman is pregnant again and the first child is in the age group of breastfeeding, the following options can be practiced by the mother / parents:

The breastfeeding (BF) shall / can be continued. The changes in hormonal milieu during new pregnancy may suppress the breastmilk (BM) secretion and there may not be significant nutritional advantages to the child. But, we can't neglect the role of BF in emotional development, feeling of security and mother-child bonding (**Comfort nursing**). The disadvantage to the child in utero can be there, as sometimes, the nipple stimulation may increase uterine contractions (due to triggering of oxytocin release) resulting in premature labor or fetal loss. (2) Hence if the mother is pregnant again (**overlap pregnancy**) and decides for BF, she should be informed the possibility of this complication. Obviously, one has to be more vigilant in mothers with bad obstetric history including previous fetal losses / abortions/ miscarriages).

According to some, if the child is accepting complimentary feeding in adequate amount, the child can be weaned off (the word is not used routinely as far as IYCF practices are concerned) from the breast.

Once the pregnancy is completed and the mother has delivered, both the siblings can now be offered the advantages of BF (**tandem nursing**). (3) The mother shall completely breastfed the younger child first and the elder child can be fed afterwards. The amount of BM which the elder child will get mayn't be significant, but he will definitely get the emotional care, bonding and benefits of human touch (**skin to skin contact**) which is so much important in today's world of increasing anger, jealousy and hatred behavior. The child will also get some of the immunological benefits.

The essence of BF lies in the fact that BF is the **right of the mother and the child.** These issues can be discussed with the mother / family on one to one basis and help them in taking an **informed decision**. One shouldn't deprive the future generation of human race of this basic human right by withholding the **nature's gift** for the human being.

Those who are activists for promotion, protection and support of BF, it is now accepted that these benefits outweigh the nutritional benefits of BM and hence BF shall be promoted even if mother is pregnant again (especially if the pregnancy is normal with no high risk factors) or if she has delivered again. Health is a product of social action and not just a result of medical care. Hence it is our social and moral responsibility to protect infant's health. (4)

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Hot Topics:
Consent: How vital is it?

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Key words: *Consent, Informed Consent, Therapeutic privilege*

Definition: Consent can be defined as **"an agreement, compliance or permission** given voluntarily without any compulsion." Consent with reference to the medical treatment, can be defined as the voluntary and continuing permission of the patient to receive a particular treatment, based on adequate knowledge of the purpose, nature, likely effects and risks of that treatment, including the likelihood of its success and any alternative in it. **Section 13 of the Indian Contract Act** defines consent as "two or more persons are said to consent when they agree upon the same thing in the same sense. The consent should be a free consent as envisaged by **Section 10 of the Indian Contract Act** in the context of medical negligence where it plays a remarkable legitimate role. With the increasing awareness of their legal rights by patients, the consent has become an all important document. The law protects the individual's right to give informed consent by requiring the disclosure of information by the party to whom consent was given. The winds are blowing in favor of the consumers and the patient is now considered as a consumer. Anything that is done with the patient has to be judged by one criterion- Is it in the best interest of our patient? Now-a-days, it requires to be in conformity with the medico-legal order of the day. In short consent is "an act of a reason combined with deliberations, the mind weighing as in a balance, the good or bad on each side". (1)

General Guidelines:

In the case of doctor-patient relationship, the onus of disclosure of information lies with the doctor and the right to decide the manner in which his/her body will be treated lies with patient (respect for autonomy). The doctor however can withhold information which can prove **"psychological detriment"** to the patient (specialized privilege). The close relatives of the patient should be involved if needed and in such situations, after discussing the risks with them, the consent should be obtained from them.

Validity of Consent:

Vague and nonspecific consent is legally invalid and doesn't stand in the court of law. **Basic criteria for the validity of the consent:** Consent must be voluntarily given in writing by the patient out of his/her free will after (a) understanding the necessity, nature and limitations, consequences and the risks of the surgical procedures; (b) realizing the possible complications and risks of the surgery and the anesthesia and (c) taking into consideration the alternative modes of treatment if any.

1) Such informed consent must be obtained in the presence of a witness, who should affix his or her signature to state so, prior to every procedure.
2) Consent given in medical profession should be at free will and accord and not by fraud, mistake or misrepresentation.

Standard of Disclosure of Information

There are two main approaches in defining the standard of disclosure of information by

which the physician's duty to the patient is measured. A majority of courts require the physician to disclose information that other physicians possessed of the same skills and practicing in the same or similar community would disclose in the same situations. A large minority of courts apply the materiality of **'prudent patient approach'** allowing them to decide whether risk or other information would have been considered significant by the reasonable patient in making a decision. Even when the therapeutic privilege for the doctor to withhold information which is considered to be psychological detriment of the patient, is taken as a defense for not making the disclosure, it has to be supported by other physicians possessing same skill and practicing in the same or similar community.

Types of consent: The consent can be broadly classified (2) as follows:

a) Implied consent: It is the consent given automatically by the patient by virtue of his action. When a patient approaches a doctor for consultation, it implies his or her willingness to be examined by the doctor.

b) Expressed consent: When a patient states expressly, in clear terms, orally or in writing to a request made by the doctor, it is termed as expressed consent. However written consent is a must for major procedures because there is risk involved that the patient, in the case of oral consent, may at a later stage deny that any oral consent was given by him.

c) Blanket consent: The consent obtained to the effect that the patient is willing to undergo any type of treatment including surgeries without mentioning any particular procedure, taken before admitting the patient, is termed as blanket consent. Such consents however have no legal validity as they do not mention any specific procedure or its possible complications.

d) Proxy consent: It is a situation when an adult, responsible person gives consent for a patient who is unable to give consent. Proxy consent is totally invalid if the patient is an adult of sound mind and is in the position to give consent.

e) Informed consent: When one speaks of consent that should be informed consent. Here the doctor explains to the patient relevant details regarding the nature of his disease, the various investigations and diagnostic procedures involved, the course and alternatives to the treatment proposed, risks involved, the prognosis and approximate expenditure/costs, for the whole. The relative chance of the success or failure is to be explained preferably, so that the patient can take an intelligent decision after obtaining a comprehensive view of the situation. Emphasis on informed consent has been laid in Janki S Kumar (Dr) v Mrs. Sarafunnisa where the sterilization was done without consent. In the case Aphraim Jayananda Rathod v Dr. Shailesh Shah the operation of appendicectomy was performed without written consent under the guise of removal of stitches and no explanation was given for the second operation. The State Commission found that the doctor was deficient in service and was liable for compensation.

Areas of special attention

Consent in emergencies:

A doctor can lawfully operate under such circumstances without consent, since it would be life saving surgery. The principle is to act in the good faith and in immediate interest of the patient's health and safety. It is also advisable to get written statement from the professional colleague about the necessity of the emergency surgery or procedure.

Minors and mentally handicapped:

Both, natural guardian and guardian appointed by the court can give consent legally for medical or surgical treatment on

behalf of the minor child in the benefit of the minor.

Third party consent or consent on behalf of the patient:

Third party consent has no legal validity in case of adults, although it is sound practice to counsel and consult the relatives and friends of the patient who are concerned with her/his care and welfare. It is standard practice to obtain signature of spouse in addition to the patient's consent, before performing sterilization operation.

Consent for research:

Informed valid consent must also be obtained from adult healthy volunteers and patients before including them in the research study.

Obtaining consent:

The consent should be obtained appropriately taking all the precautions in the language and manner easily understood by the patient.

Refusal of consent/ treatment:

In situation where there is a refusal to treatment, the consequences should be explained to the patient in the presence of witnesses and it is better to get refusal signed by them. If the patients or relatives refuse to sign also, neutral witness's signature may be obtained. A refusal to accept a specific aspect of treatment does not remove a patient's entitlement to reasonable and proper care, nor, it confers upon the patient a right to an alternative form of treatment that would not be normally available to other patients.

Can consent be done away?

The consent can be done away with if there is a dire emergency and there is no advance directive or refusal to take treatment. The most sacred duty of medical practitioner is to save the life of his patient. The surgeon may go ahead with the operation without waiting for the consent if the patient needs immediate surgery and waiting for the consent may prove fatal for the patient. The aim is to save the life of the patient–something in the best interest of the patient.

Following are the various <u>exceptions</u> to requirement of consent:

The courts recognize certain situations where a physician's non-disclosure will be excused.

i. If a patient is incompetent to make a reasoned decision, then disclosure to the patient may not be required.
ii. Under the special privilege called as ***"therapeutic privilege"*** the physician may withhold the disclosure if it would be upsetting or otherwise would interfere with the treatment or adversely affect the condition or the recovery of the patient or can result in loss of life.
iii. In emergency situations, the doctor can go ahead straightway for the emergency surgery without waiting for the consent which would detrimentally delay the proper treatment (second opinion of the colleague in writing before undertaking such surgery is advisable). Moreover, a physician need not disclose the risks which the patient is already aware of and risks which are commonly known.
iv. Consents by lunatics, minors, intoxicated persons and persons in coma are invalid. In such cases the guardian's consent holds validity.
v. In cases involving a child, an accident victim, an insane person or a person who is unconscious or delirious; consent is not necessary.

Other situations where consent may not be obtained:

1. In case of a person suffering from a notifiable disease.
2. Immigrants.
3. Members of armed forces.
4. Handlers of food and dairy milk.
5. New admissions to prisons.

6. In case of a person where a court may order for a psychiatric examination or treatment

Under section 53 (1) of Cr. PC, a person can be examined on request of the police by use of force. S 53 (2) lays down that whenever a female is to be examined it shall be made only by or under the supervision of a female doctor or in the presence of female attendant.

Penal provisions regarding informed consent:

The medical practitioners who violate the essential criteria of the informed consent are liable to be removed from the rolls of the Medical Council. Even the Indian Penal Code makes the offence punishable with a fine and or imprisonment depending on the circumstances of the case.

Conclusion

A proper well informed valid consent wherever possible is a must to avoid litigation and to stand in the court of law to face it if a mishap occurs.

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Expert's View:
Legal issues and preventable medical errors

***Dr Mahesh Baldwa, Dr Satish Tiwari**

Key Words: *Medical errors, Medical Negligence, Documentation, Record Keeping, Communication skills*

Medical error is said to have occurred when a medical professional chooses an inappropriate method of treatment or chose the right treatment but carried it out incorrectly.

Common preventable medical errors are wrong site surgery, leaving a gauze or artery forceps in body cavity during surgery, administering wrong medication, or transplanting wrong organs, transfusing wrong blood and resulting reactions, transposing anesthetic gas pipes causing death etc.

Nature and extent:

Worldwide there is increasing awareness of the high incidence of medical errors and their significant associated morbidity. **In India hardly any studies are carried out to analyze medical error.** A study focusing 2002-2004 hospitalization in US reveals that about 83,000 potentially preventable deaths occurred each year. Preventing medical errors and injuries among hospitalized children is studied by Landrigan in detail (1). Besides hospitals, medical errors also occur in other health care settings such as clinics, physicians' offices, pharmacies, nursing homes, urgent care centers and the care delivered in the home (2). The Commonwealth Fund, 2002 suggests that one in five Americans (22%) reports that they or a family member have experienced a medical error of some kind. The office of the medical inspector at the Veterans Administration (VA) reported a total of 2,927 medical errors from June 1997 to December 1998, more than 700 of which resulted in accidental patient deaths or suicides. According to agency for healthcare research and quality, 2002, about 7,000 people are estimated to die each year from medication errors - about 16 percent more deaths than the number attributable to work-related injuries (6,000 deaths). Findings of Institute of Medicine, 1999 appreciate that in all US hospitals, the increased costs of preventable medication errors costs the economy about $2 billion each year. One extrapolation suggests 180,000 people die each year partly as a result of iatrogenic injury, the equivalent of three jumbo-jet crashes every 2 days (3). A study was conducted in a teaching hospital to identify and analyze medical errors in pediatric practice. All admitted children underwent surveillance for medical errors. Of 457 errors identified in 1286 children, medication errors were 313 (68.5%), those related to treatment procedures were 62 (13.6%) and to clerical procedures 82 (17.9%). Physiological factors accounted for 125 (27.3%) of errors, equipment failures in 68 (14.9%), clerical mistakes 118 (25.8%), carelessness 98(21.4%) and lack of training for 48 (10.5%). Morbidity was nil in 375 (82%), mild in 49 (10.7%), moderate in 22 (4.8%) and severe in 11 (2.4%) errors (4).

Medical Error: Error of Judgment

Error of judgment can be considered if there is error in interpretation of some of the symptoms, signs or investigations in any particular patient. This may lead to wrong diagnosis or treatment. Error of judgment is accepted defense in most of the courts in cases of medical negligence. In a recent Supreme Court judgment *(Martin F D' Souza*

v. Moh Ishfaq Civil Appeal no. 3541 of 2002), the Apex court has agreed that while doctors who cause death or agony due to medical negligence should certainly be penalized, it must also be remembered that like all professionals doctors too can make errors of judgment but if they are punished for this, no doctor can practice his vocation with equanimity. Indiscriminate proceedings and decisions against doctors are counter-productive and serve society no good. They inhibit the free exercise of judgment by a professional in a particular situation.

Difficulties in measuring frequency of errors

Although about 1% of hospital admissions have an adverse event due to negligence (5), mistakes are actually much more common as these studies only identify mistakes that lead to measurable adverse events occurring soon after the error. The Institute of Medicine (IOM) called for a broad national effort to include establishment of a center for patient safety, expanded reporting of adverse events, development of safety programs in health care organizations, and attention by regulators, health care purchasers, and professional societies (6).

Most common causes

The federal government's Agency for Healthcare Research and Quality (AHRQ) found that 18 categories of medical errors, such as postoperative infections, accidental reopening of surgical wounds, and medical objects left inside patients, result in 32,500 hospital deaths, cost $9.3 billion in additional hospital charges, and lead to over 2.4 million extra days spent in hospitals. The following list of potential causes is not exclusive, but it does cover the main areas and most medical errors could be avoided if the doctors, nurses, dentists and other practitioners took more care. Some of the common medical errors along with the views of different courts are discussed below:

Diagnostic errors: This type of error could be a direct mistake of a doctor or caused when the doctor is acting on incorrect information supplied by some other person. The national commission in a case; *Bombay Hospital v. Sharifabai Ismail I (2008) CPJ 432 (NC)* held that consultant is liable for errors in interpreting report. Senior consultant is not expected to sign whatever junior staff suggests, without reading the same. The consultant radiologist who signed the report is responsible for misreading / non-reading of MRI films correctly. The duty of consultant begins and ends with correct interpretation of reports of film/scan.

Inappropriate communication between various medical service providers: In an important and interesting judgment *S Sharma v. Bombay hospital II (2007) CPJ 9 (NC);* National commission has observed that there was lack of co-ordination between surgeon, anesthetist and cardiologist resulting in improper evaluation and assessment. It was also observed that in such a renowned hospital no efforts were made to bring co-ordination between various specialists and ICU residents.

Incorrect record keeping: In, *Dr Sri Mohan v. Sukhpalsingh I (2008) CPJ 458 (NC)* the petitioner doctor, adopted for traction as surgery was refused by the complainant. But it was found that the document showing "advised surgery but refused" is not genuine. This was considered as clever and unbecoming effort on part of petitioner to conceal the fact of one leg getting shortened. This manipulation was declared as professional failure and violation of professional ethics by the national commission.

Errors in prescribing medication, mishandling of medications: In, *Dr Sham Lal v. Saroj Rani I (2003) CPJ 47 (NC),* negligence was accepted and compensation was granted when a patient died of cardiac

embolization due to Intravenous administration of injection. In a recent judgment, *Seth Pukhraj Gen Hospital v. M Rajput I (2009) CPJ 114(NC)* negligence was held and compensation awarded when the child developed gangrene due to administration of injection and the hand had to be amputated.

- **Lack of more safeguards** or checking points of healthcare system: A patient who remained unattended in a recovery room eventually succumbed due to post operative shock. The hospital authorities and doctors explained that this is only **"System Failure"** and no one is individually negligent for the death of the patient. In this case, *LT Kotgiri v. Union of India (Railway Hospital) I (2007) CPJ 491* National commission observed that it is not explained / disclosed that how the system failed and what was the exact cause of system failure and though the individual doctor may not be negligent but post-operative care was negligent.

- **Misdiagnosis** of an illness, failure to diagnose or delay of a diagnosis: In a case, *Sudhakar Gupta v. Anugraha Nursing Home I (2008) CPJ 57 (NC);* patient was suffering from leukemia but received treatment for typhoid. Bone marrow aspiration was advised by the doctor but complainant himself refused repeatedly. It was held that complainant himself was negligent.
- **Oxygen deprivation** is one major cause and it can occur due to mechanical trauma. This may occur when the baby assumes an unusual position at the time of birth or when the baby is too large to pass through the birth canal easily.
- Failure of **hospital staff** or **a pharmacist** to dispense the right medicine to the right patient in the correct amount: In, *D Gokaran v. Mahant G Singh Charitable hospital I (2003) CPJ 518;* the doctors and hospital staff were held negligent for incorrect / defective administration of medicine without checking the correctness of the medicine supplied by the pharmacist located in the hospital premises.
- **Inappropriate or substandard treatment** or Failure to provide treatment: A patient of respiratory distress was advised and admitted for inter costal drainage (ICD). The procedure was not performed on the ground of its non-availability. In this case between *Dean, Tirunveli Med College v. U Subramaniyan I (2008) CPJ 188;* the State commission held that the non-providing of ICD may not be the cause of death but the fact remains that the treatment prescribed was not provided and this amounts to deficiency in service.

Failure to follow-up on a patient: A patient was started anti-tubercular drugs without conducting mandatory tests for tuberculosis. Condition of patient deteriorated, no instructions were given regarding side effects of the drugs. The patient ultimately died due to drug induced hepatitis. In this case, *Shyamsunder v. Pandharinath I (2008) CPJ 53;* principle of ***res ipsa loquitur*** was applied and negligence was held.

Failure to obtain **informed consent**: In, *Samira Kohli v. Prabha Manchanda I(2008) CPJ 56 (SC)* the Supreme Court has held that performance without proper consent is unauthorized invasion and interference with appellants body and amounts to tortuous act of assault and battery. In this case the apex court has commented that the consent should be real and valid. The doctor should communicate all inherent and potential hazards of the proposed treatment, the available alternatives, if any, and the likely effect if patient remained untreated.

- **Anesthesia-related complications** including failure to safely administer anesthesia: In a case, *St. Gregarious hospital v. Raji George I (2008) CPJ 68 (NC)* it was found that a local anesthesia (Xylocaine and Adrenaline) was administered though the patient was under general anesthesia. This was done by the surgeon though stopped by anesthetist in this case the negligence was held.
- Failure to prevent patient **injuries** (such as falls) on medical facility property.
- Failure to follow **Advance Directives**: An advance directive tells your doctor what kind of care you would like to have if you become unable to make medical decisions. Do not resuscitate (DNR) is permissible in USA and some western countries but it may amount to culpable homicide in India.
- Giving two or more drugs that interact unfavorably or cause poisonous metabolic byproducts;
- **Wrong-site surgery**, such as amputating the wrong limb: These are the cases of gross negligence punishable usually under the principle of ***res ipsa loquitur.***
- Gossypiboma, a surgical sponge left behind inside the patient after surgery.
- Overwork and tiredness of medical staff called on to perform extra duties.

Medical error definitions are subject to debate, as there are many types of medical error from minor to major (7) Medical care is frequently compared adversely to aviation while many of the factors which lead to errors in both fields are similar; aviation's error management protocols are regarded as much more effective (7).

Epidemiology of medical error

Medical errors are associated with inexperienced physicians, new procedures, extremes of age, complex care and urgent care (8). Poor communication (whether in one's own language or, as may be the case for medical tourists, another language), improper documentation, illegible handwriting, inadequate nurse-to-patient ratios, and similarly named medications are also known to contribute to the problem. Patient actions may also contribute significantly to medical errors. Falls, for example, are often due to patients' own misjudgments.

Sleep deprivation has also been cited as a contributing factor in medical errors. One study found that being awake for over 24 hours caused medical interns to double or triple the number of preventable medical errors, including those which resulted in injury or death (9). The risk of car crash after these shifts; increased by 168% and the risk of near miss by 460% (10). Interns admitted falling asleep during lectures, during rounds, and even during surgeries (11).

Approaches to error

Traditionally, errors are attributed to mistakes made by individuals who may be penalized for these mistakes. The usual approach to correct the errors is to create new rules with additional checking steps in the system, aiming to prevent further errors. The various strategies that can be applied include:

a) **Look-alike or sound-alike** (LA/SA) health products refer to names of different health products that have orthographic similarities and/or similar phonetics (i.e. similar when written or spoken). These medication errors may be more likely to occur because of contributing factors such as identical doses, dosage forms or routes of administration, similar packaging or labeling, incomplete knowledge of drug names, illegible handwriting, verbal order errors and even lack of an appropriate knowledge-base.

b) Critical tasks should be structured so that errors cannot be made. A computer program that disallows the dispensing of a lethal medication dose is an example.

Simply including pharmacists on hospital rounds is a low-cost way to catch two of every three drug errors before they occur

c) Remember the **five rights** - the right drug, right dose, right route, right time and right patient.

d) Use of standard protocols and guidelines coupled with academic education promote a more consistent approach to patient care and these should be put in place.

e) Breakdown in communication is a common cause of harm to patients and this need to be addressed at several levels.

f) It is vital to evaluate the prescription writing skills acquired by students at undergraduate and postgraduate levels.

g) Consumer education is the **"secret weapon"** in the war against medical errors. It's unfortunate that people research buying a car better than they research health-care decisions.

h) Finally, it is important to work in conjunction with the most important stakeholder- the patients and help them understand the risks involved in healthcare and work with them to reduce harm.

Errors in medical practice are not uncommon. Majority, usually go unnoticed and are largely underreported for various reasons at individual and even institutional level. Efforts to create awareness among doctors should begin at undergraduate and postgraduate levels by including it in teaching curriculum. *"It may be part of human nature to err, but it is also part of human nature to create solutions, find better alternatives, and meet the challenges ahead."*

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Original article:
Epidemiology of Rota virus diarrhea in coastal Orissa

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Key words: *Rota virus, Diarrhea, Malnutrition*

Introduction

Brener and Horne is 1959 described a novel technique of electron microscopy which ushered a new era in the field of experimental and diagnostic virology. Rota virus in 1963 was first described as an agent of infantile murine diarrhea. 10 years later in 1973 Bishop and his associates observed by electron microscopy, in the duodenal epithelium of children with diarrhea, a 70 nm virus at Royal children's hospital in Melbourne of Australia.(1) Subsequently in 1974 Flewtt and colleagues advanced the name "rotavirus" based on its "wheel-like appearance.(2) Within 5 years of this discovery rotavirus was recognized as the most common cause of diarrhea in infants and young children worldwide, accounting for approximately one third of cases of severe diarrhea requiring hospitalization.

Rota Viruses are 70 nm icosahedral, non-enveloped, and double stranded RNA virus belongs to the family Reoviridae. Rota Viruses are classified as groups, subgroups and serotypes. The groups do not have any antigenic relations. Group A predominantly affect humans and Group B in China and Group C occasionally reported to be pathogenic for humans.(3) Other 4 groups (D, E, F & G) are not seen in humans. G1, G4, G9, with P4 and P8 serotypes with combinations are predominant worldwide causing 90% infection in industrialized countries and 68% infection in Asian countries.(4) G9 strains have emerged in the early 2000s and have become predominant in some regions of the world including Europe and parts of Eastern Asia. Less usual strains like G10 P (11) and G12P (6) also evolved in India.(5)

Rotaviruses are the leading cause of severe diarrheal diseases and dehydration in infants and children worldwide under the age of 5years. It has been estimated that rotavirus infection is responsible for 111 million episodes of diarrhea requiring home care and 2 million hospitalization from the same cause with approximate 4, 40, 000 deaths in under fives, 82% of which occurs in the developing world.(6) Almost 100,000 deaths occur each year in India alone and double the number are lost in African countries.(7)

Virtually all the children are infected by the time they reach two to three years of age. Most symptomatic episodes occur between 3 months and 2 years with a peak incidence between 7 and 15 months (8). The disease has definite winter seasonality in south India. A mean minimum temperature of 24^0 C predisposed more to rotavirus infection. In a study from south India overall Rota virus infection amongst children with acute diarrhea was 22.5% with no gender specificity.

The incubation period ranges from 1 to 3 days but mostly within 48 hours and there is often exposure to other children with diarrhea illness. It starts with anorexia and vomiting with low or moderate grade

pyrexia, watery bloodless copious diarrhea and abdominal cramps. Dehydration often is the presenting complaint. Diaper dermatitis, disproportionate tachycardia, weight loss and signs of dehydration are obvious physical findings. Hyperactive bowel sounds are the most common physical finding.

The presence of reducing substances in the stool suggests significant carbohydrate malabsorption.(9) Rotavirus infection is frequently associated with respiratory symptoms than with diarrheas of other etiology. (10)

Therefore rapid diagnosis of Rotavirus infection is the need of the day. A number of diagnostic assays have been developed to detect the virus and/or to demonstrate the serological response induced by the virus in the host. Electron microscopy, Enzyme Immunoassays, ELISA, Latex Agglutination, Polyacrilamide Gel Electrophoresis (PAGE), Rapid immune-chromatographic Tests etc have produced almost similar results so far specificity and sensitivity are concerned.

Avoidance and treatment of dehydration are the main goals in therapy. Usually cases recover with fluid and electrolyte replacement. The second objective is maintenance of adequate nutrition in the face of vomiting more so when the child is malnourished.

Material & Methods

The cases of Gastro Enteritis attending OPD of a small Pediatric unit at Cuttack were analyzed from 1st December 2009 to 31st March 2010. 80 cases positive for Rota virus by immuno-chromatographic test were analyzed. Peculiarly they clustered in the winter months and disappeared with rise of the environmental temperature. The cases were studied in a predesigned format for their clinical picture and bedside lab diagnosis.

The SD BIOLINE Rotavirus test kits are utilized. It is an immunoassay which detects Group A Rotavirus in fecal specimens. The test utilizes two kinds of antibodies in a solid phase sandwich immuno-Chromatography to detect group specific proteins, including the major inner capsid protein, present in Rotavirus.

The stool was collected directly from the anus during the process of defecation. Around 50 Gms of stool was taken by inserting a sterile swab which gets soaked with the stool secretion. The swab is swirled in the fluid until the sample was dissolved into the diluents and the swab was taken out with gentle squeezing of the content against the walls of the tube.

The test device and extracted sample were allowed to achieve the room temperature before testing. 4 to 5 drops (120-150 micro liters) of the specimen was added in to the sample well of the test device. Interpretation of the result was done within 10 to 20 minutes. Any band appearing after 20 minutes was not considered as positive. The appearance of two color bands (Test and Control-C) was taken as a Positive result. The test gave a Sensitivity of 94% and specificity of 98.3% and a correlation of 96.9% with RT-PCR.

The stool examination for microscopy and reducing substances was done at bedside in the conventional methods.

The clinical picture was recorded daily till discharge in cases who got admitted. Children who were treated on OPD basis were followed up by the history obtained from the parents. The families were explained the facts clearly and also were informed that these episodes may last little longer. The children were kept in the hospital till they had total improvement.

Observation

Maximum number of cases clustered in the age group of 7 months to 18 months. Almost half the total cases occurred within 7 to 12 months. The male to female distribution is 2:1 which does not reflect a true disparity as the same ratio is maintained in OPD attendance. 49% (39) cases with >10 Number of stools per day / with moderate to serve dehydration, were severe enough to get admitted for intravenous fluids. 51% cases were treated OPD basis as dehydration and vomiting were not severe. (Table 1)

60% (48) cases had body weight of more than 80% of the reference standard. 11% (9 cases) could be categorized as Marasmic (weight below 60% of the standard). This points to the fact that nutrition probably is not a factor in limiting the incidence or severity of the disease. There is not much difference in weigh verses hospital admission. The mean duration of diarrhea was longer in the well nourished group with body weight more than 70%. It was 4.93 days with body weight more than 80% and 4.33 days with body weigh less than 50%. The mean duration of vomiting however did not show a lot of variation being 3.68 days in well nourished children (body weight more than 80%) and 3.71 days in weight less than 50% (Table II).

The maximum duration of loose motion was recorded to be within 6 days with only four exceptions which continued to 7 days or longer. None of them exceeded 10 days and there was no case of persistent diarrhea. 87.5% (70) cases had started with diarrhea and maximum intensity on 2nd and 3rd day diarrhea from Rota Virus infection and the number regressed gradually. (Table III)

Table No.-III

The duration of loose motions in Rota Virus diarrhea:

Loose Motion	No. of Case.	% of Total
D0	70	87.5
D1	79	98.75
D2	76	95
D3	71	88.75
D4	54	67.5
D5	26	32.5
D6	4	5

Vomiting was recorded in the first day is 81.25% (65) of cases. The highest number 85% (65) had vomiting in the second day which regressed gradually and on 7th day there was no case with vomiting. Maximum vomiting was observed in the first 3 days. (Table IV)

Table No.-IV

The duration and vomiting in Rota Virus Diarrhea:

Vomiting	No. of cases	% of Total
D0	65	81.25
D1	68	85
D2	60	75
D3	42	52.5
D4	20	25
D5	9	11.25
D6	0	0

Fever was noted in 45 children (56.25%) on the first day. Maximum children 81.25% (65) had fever on second day. The number having fever declined after 3rd day and almost disappeared on 5th day. However the magnitude of fever was not very high except few cases. No child had febrile convulsion with Rota associated fever. (Table V)

Table No.-1

Age and Sex Distribution

Age	Total	Male	Female	Admitted	Not Admitted
6 Month & Below	13	11	2	6	7
7 Months- 12 Months	37	24	13	19	18
13 Months-18 Months	22	14	8	10	12
19 Months and above.	8	6	2	4	4
TOTAL	80	55 (68.75)	25 (31.25)	39 (48.75)	41 (51.25)

Table No.-II

Effect of Nutrition on duration of motion and vomiting in Rota Virus Diarrhea:

Weight	Total	Admit	Not Admit	Male	Female	Duration of Loose Motion in days	Duration of Vomiting in days
>80%	48	25	23	34	14	4.93	3.68
71%-80	14	6	8	9	5	4.86	3.57
61%-70	9	3	6	5	4	4.00	3.90
51% - 60%	3	2	1	3	0	4.33	4.00
<50%	6	3	3	4	2	4.33	3.71
Total	80	39	41	55	25		

Table No.-V

The duration of fever in Rota Virus Diarrhea

Fever	No. of cases	% of Total
D0	45	56.25
D1	65	81.25
D2	68	72.5
D3	34	42.5
D4	13	1
D5	4	5
D6	0	0

Perianal excoriation was strikingly more than cases of diarrhea due to other etiology. It appeared on first day in 6 cases and was marked up to 6 days. Maximum numbers being recorded in 3rd and 4th day (61.25% & 58.75% respectively). It disappeared on 7th day even though diarrhea was still continuing in four cases. (Table VI)

Environmental temperature seems to be one of the major determinants of Rota Virus gastro-enteritis. To assess the effect of environmental temperature the daily temperature around Cuttack and Bhubaneswar was taken from the metrological department of Bhubaneswar.

Table No.-VI

Perianal Excoriation in Rota Virus Diarrhea

Perianal excoriation	No. of cases	% of Total
D0	6	7.5
D1	33	41.25
D2	49	61.25
D3	47	58.75
D4	35	43.75
D5	21	26.25
D6	0	0

62.5% cases were found in December with an average monthly temperature of 23.04^{0} C. In January even though the temperature was still lower with monthly average of 21.95^{0} C, yet the incidence started declining. When the data was analyzed with the interval of 15 days, the maximum cases 27 (33.75%) occurred with an average temperature of 23.53^{0} C. (Table VII). Therefore it was thought that some other factor might be responsible for the prevalence of Rota Virus infection.

Table No.-VII

Mean Temperature and Rota virus Infection

Time	No. of Cases	Max Temperature	Min Temperature	Average Temperature
Dec 1 - 15	27(33.75)	30.25	16.81	23.53
Dec 16 -31	23(28.75)	29.23	14.04	22.815
Jan 1-15	14(1.75)	27.76	16.087	21.92
Jan 16-31	7(8.75)	29.33	14.51	21.905
Feb 1- 14	4(5)	33.03	17.17	25.10
Feb 15-28	4(5)	35.01	21.16	28.085
March 1-15	1(1.25)	37.56	24.05	30.805

Table No.-VIII

Mean Temperature and Humidity with Rota virus Infection

Month	No. of Cases	Temperature		Average Temperature	Humidity		Average
		Maximum	Minimum		Maximum	Minimum	
Dec 2009	50 (62.5%)	29.67	16.41	23.04	77.35	59.10	68.225
Jan 2010	21 (26.25%)	28.60	15.30	21.95	73.9	50.8	62.35
Feb 2010	8 (10%)	34.0	19.4	26.7	76.3	46.7	61.50
Mar 2010	1 (1.25%)	37.6	24.7	31.15	76.68	63.8	70.24

Humidity is also a factor which favors bacterial and viral growth apart from temperature. In December where the case incidence was maximum the average relative humidity of the area was 68.225. In January even though the temperature had gone down the climate became drier too with average relative humidity of 62.35 and the incidence started regressing. The humidity in March was same as December but the temperature was high with a mean average of 37.6^{0} C and only one case, may be a spillover of February was noted. This points to the interplay of temperature and humidity as the determinant of Rota Virus infection rather any one of them alone. (Table VIII)

Discussion:

The small work is aimed to study the clinical profile of moderate to severe cases of Rota Virus diarrhea. The presentation is different than other toxic, infective and parasitic diarrheas. The striking features being fever, vomiting and loose watery motions almost starting simultaneously. Perianal excoriation with exaggerated bowel sounds appeared much early in the disease which is not seen in other diarrheas. Rota Virus diarrhea is almost exclusively seen in winter months with the minimum temperature of 16.81^{0} C, maximum of 30.25^{0} C and a mean temperature of 23.04^{0} C. Mainly in the month of Dec, Jan and February to disappear thereafter as the environmental temperature runs high.

There is one disparity in the case prevalence pattern. Even though the mean temperature was further reduced in January the incidence did not go up proportionately rather it got reduced by half. When the low temperature was coupled with relative humidity, it was noted that as the humidity got reduced the incidence also started reducing. The maximum prevalence was noted with a mean temperature around 23^{0} C and relative humidity around 70%.

Usually the Rota virus diarrheal episodes are more prolonged than other types of diarrhea but none in the series qualified for persistent

diarrhea. Though sugar intolerance was common with classical sign of abdominal distention, perianal excoriation, acidic stools with stool sugar positive, yet unusually they did not require withholding milk from the diet. Breast milk was never stopped, those getting formula only, it was further diluted.

Rota diarrhea was more seen in well nourished children. Even the diarrhea episodes were marginally prolonged in them than the malnourished group. This may be because of the affinity and good growth of viruses in the healthy gut. Duration of vomiting, fever and perianal excoriation does not show significant variation in different nutritional groups. 48.75% of the total cases required hospitalization and IV infusion to correct dehydration. They continued to get IV fluid for a variable period with ORS and other fluid supplement.

Conclusion:

Rota virus diarrhea was predominately seen in winter months with mean environmental temperature of $23^{O}C$ and relative humidity of 70. Clinical picture of the disease differed widely from diarrhea due to other causes and one can be sure with the clinical presentation as well as basic bed side tests of the presence of Rota Virus diarrhea.

As a larger proportion of cases required intravenous fluids, once suspected, children should be sent to an area where facility to administer IV fluids to children can be made available.

Antibiotics have no role, fluid and electrolyte balance is the main concern and if looked after properly, gives a very good prognosis.

Take Home Massage:

1. Rota Virus diarrhea is common is winter months with average temperature of $23^{o}C$ and 70% relative humidity.
2. Clinical picture and bedside investigations are good enough to suspect and treat the disease.
3. Children should be sent to the area where IV fluid can be administered if required.

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Medical Education
One Minute Preceptor

***Dr. Jayant Vagha, Dr. S.R. Tankhiwale, Dr. Sunita Vagha, Dr. Tripti Waghmare**

Key words: *Medical Education, One Minute Preceptor*

Clinical teaching suffers from several pitfalls. Shortage of teaching time due to busy OPDs and wards remains the main problem. This leads to insufficient time given to students in clinical teaching either to think or to respond. The common way out is giving readymade answers quickly. There, also is a tendency to nag the students for what they don't know, being overly critical and not enough appreciative. (1) Much of the clinical teaching involves interviewing and examining the patient and then presenting the information to the preceptor. This strategy is common both in the office and hospital settings. Studies have indicated that on an average these interactions take approximately 10 minutes and the time is divided in several different activities. Much of this time is taken up by the presentation of the patient by the learner. Additional time is spent in questioning and clarifying the content of presentation. As a result only a small time, say, a minute is actually spent on discussion and teaching. (2)

The one minute preceptor (OMP) approach allows the preceptor to take full advantage of the entire encounter in order to maximize the time available for teaching. The teaching encounter will still take longer than a minute but the time spent is more efficiently used and the teaching effectiveness optimized. Dr. John Neher and Dr. Kay Gordon proposed this OMP model where number of skills (micro skills), are employed in a stepwise fashion at the end of a learner's presentation. (3) Each step is an individual teaching technique or tool, but when combined they form one integrated strategy for in the health care setting.

The five micro skills proposed by Dr. Neher and Dr. Gordon are commitment of diagnosis, asking for supportive evidences, teaching general rules, telling what was done right and correcting the mistakes.

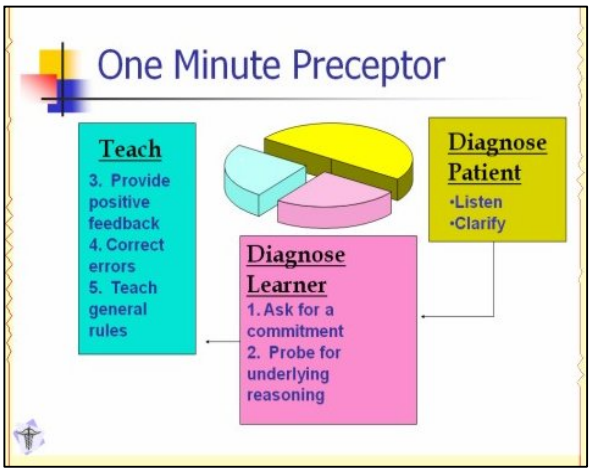
The OMP method: There are **'five steps'**:

1. Get a commitment
2. Probe for supporting evidence
3. Reinforce what was done well
4. Give guidance about errors and omissions
5. Teach a general principle

Step One: Get a commitment

At this point, there are many teaching techniques one could employ, but the One-Minute Preceptor method suggests that the teacher gets a commitment from the learner – to get him to verbally commit to an aspect of the case. The act of stating a commitment pushes the learner to move beyond his level of comfort and makes the teaching encounter more active and more personal. This can show respect for the learner and fosters an adult learning style.

The learner stops his presentation at the end of the physical exam. An appropriate question from the preceptor might be: "What do you think is going on with this patient?" This approach encourages the learner to further process the information he has gathered. The teacher obtains important information on the learner's clinical reasoning ability and the learner is given a higher sense of involvement and responsibility in the care of the patient.



If the answer is correct, then there is the opportunity to reinforce a positive skill. If the response is incorrect, an important teaching opportunity has occurred and the impact of the teaching is likely to be greater since the learner has made the commitment.

By selecting an appropriate question, the preceptor can take a learner at any stage and encourage him move further along in his skills and to stretch beyond his current comfort level.

Notice that questions used in getting a commitment do not simply gather further data about the case. The goal is to gain insight into the learner's reasoning. Questioning by the preceptor for specific data reveals the preceptor's thought process – not the learner's. The learner in the example above needs the opportunity to tell the teacher, his assessment of the patient data he has collected.

Step Two: Probe for supporting evidence

Now that the teacher has a commitment from the learner, it is important to explore what the basis for his opinion was. The educational setting often rewards a lucky guess to the same degree as a well-reasoned, logical answer. In the clinical setting, it is important to determine that there is an adequate basis for the answer and to encourage an appropriate reasoning process. By the same token it is important to identify the "lucky guess" and to demonstrate the use of appropriate supporting evidence.

Once the learner has made his commitment and looks to the teacher for confirmation, the teacher should resist the urge to pass immediate judgment on his response. Instead, ask a question that seeks to understand the rationale for his answer. The question the teacher asks will depend on how he has responded to teacher's request for a commitment:

Step Three: reinforce what was done well

In order for the learner to improve he must be made aware of what he did well. The simple statement "That was a good presentation" is not sufficient. The learner is not sure if his presentation is "good" because he included current medications or because he omitted the vital signs. Comments should include specific behaviors that demonstrated knowledge skills or attitudes valued by the preceptor.

With a few sentences the teacher has reinforced positive behaviors and skills and increased the likelihood that they will be incorporated into further clinical encounters.

Step Four: give guidance about errors and omissions

Just as it is important for the learner to hear what he has done well, it is important to tell him what areas need improvement. This step also fosters continuing growth and improved performance by identifying areas of relative weakness.

In framing comments it is helpful to avoid extreme terms such as `bad' or "poor". Expression such as "not best" or "it is preferred" may carry less of a negative value judgment while getting the point across. Comments should also be as specific as possible to the situation identifying specific behaviors that could be improved upon in the future.

It is important to reflect here that a balance between positive and constructive criticism is important. Some preceptors may focus on the positive, shying away from what may be seen as criticism of the learner. Others may focus nearly exclusively on areas for improvement without reinforcing what is already being done well. As with many things in life, balance and variety are preferable.

Step Five: Teach General Principle

One of the key but challenging tasks for the learner is to take information and data gained from an individual learning situation and to accurately and correctly generalize it to other situations. There may be a tendency to over generalize – to conclude that all patients in a similar clinical situation may behave in the same way or require the exact same treatment. On the other hand, the learner may be unable to identify an important general principle that can be applied effectively in the future. Brief teaching specifically focused to the encounter can be very effective.

In a short project aiming at feasibility of introducing OMP for teaching post graduate students, the following conclusion could be observed. Participation in the OMP method generated fervor on the part of students and staff. The residents gave a favorable feedback and they had an opinion that the healthy relationship and rapport with the staff, healthy learning environment, their enhanced managerial skills, improved clinical skills and good utilization of time were the most consistent advantages. The staff opined that the students started reading more for day to day teaching and that OMP led to a very conducive teaching learning environment.

Clinical teaching during the OPDs and ward rounds poses a big challenge. OMP method can be a solution for this. It creates a healthy non threatening relationship between student and preceptor thus making the teaching learning environment more conducive.

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Case Reports:
Ectopia Cordis

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Key words: *Ectopia cordis, Cantrell's pentalogy*

Ectopia cordis or extra thoracic heart is defined as an anomaly in which the fetal heart lies outside the thoracic cavity. It is a rare congenital anomaly with a mortality rate of 50-60%. Worldwide, 230 such cases have been reported and only three survived. Ectopia cordis is a rare and impressive congenital anomaly, occurring in 5.5 to 7.9 per million live births.(1) The defect is characterized by partial or complete displacement of the heart out of the thoracic cavity. It is a rare congenital defect in fusion of the anterior chest wall resulting in extra thoracic displacement of the heart. The two most common forms of ectopia cordis are the thoracic and thoraco-abdominal type.(2,3) The thoracic ectopia cordis constitutes the classic naked heart with no overlying somatic structures. The thoraco-abdominal type is frequently associated with Cantrell's pentalogy, which include bifid sternum, deficiency of the diaphragm, defect of diaphragmatic pericardium, defect of the anterior abdominal wall, and intracardiac defects.(2,4) Most of the cases are sporadic and no familial tendency or recurrence has been demonstrated, but thoraco-abdominal ectopia cordis has also been reported in twins.(5)

Case Report

A 3 kg female infant was delivered in our hospital at 36 weeks period of gestation without any antenatal diagnosis of ectopia cordis or Cantrell's pentalogy. The baby was born to a 24 yrs old primi gravida mother by vaginal delivery following preterm labor. The antenatal history was unremarkable and there was no history of consanguineous marriage, antenatal infection, drug ingestion, exposure to radiation. The antenatal ultrasonography done at 20 weeks period of gestation could not detect any anomaly. There was no family history of any congenital abnormality. At the time of presentation, the neonate had acrocyanosis with heart rate of 148/min and respiratory rate of 60/min. The beating heart was visible in the middle of the chest wall with the apex pointing towards the chin and devoid of pericardium. The lower half of the sternum was deficient and the umbilical cord was attached to the lower part of the abdominal wall defect. The baby also had meningocele and valgus foot deformity.

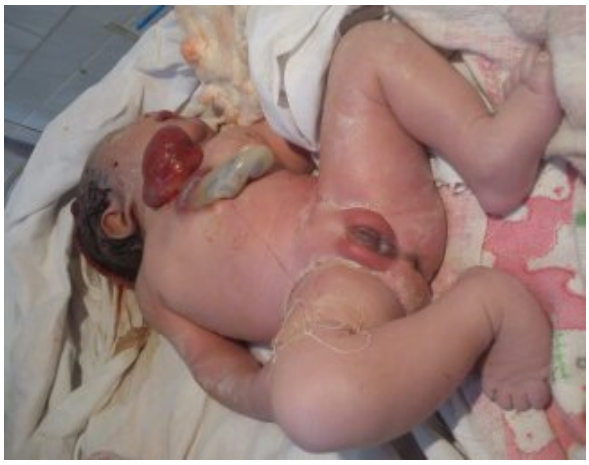

Fig.1: Baby with thoracic ectopia cordis showing associated supraumbilical wall defect and valgus foot deformity.

Baby was resuscitated on admission and initial management included covering of the heart with sterile soaked dressing and systemic antibiotics were started. The family was counseled regarding the poor prognosis and was advised referral to a higher centre where facilities for pediatric surgery were

available, but the condition of the baby deteriorated rapidly and died within a few hours of life before any investigations could be undertaken. The autopsy was declined by the parents.

Discussion

Ectopia cordis is a rare and striking congenital heart defect, which was first observed 5000 years ago.(6) The term ectopia cordis was first coined by Haller 1706. The defect is described as malposition of the heart, partially or completely outside the thorax.(7) According to the position of the misplaced heart, ectopia cordis can be classified into five types : 1) cervical, in which the heart is located in the neck with sternum that is usually intact; 2) thoracic-cervical, in which the heart is partially in the cervical region but the upper portion of the sternum is split; 3) thoracic, in which the sternum is completely split or absent and the heart lies partially or completely outside the thorax; 4) thoraco-abdominal, which usually accompanies Cantrell's pentalogy; 5) abdominal, in which the heart passes through a defect in the diaphragm to enter the abdominal cavity.(5)

Fig. 2: Baby with thoracic ectopia cordis with meningocele.

Genesis of ectopia cordis has not been fully explained, although several theories have been offered.(5) Predominant theory states that there is primary failure of midline fusion of the lateral body folds(8); early rupture of chorion and/or yolk sac causing failure of midline fusion, amniotic band syndrome.5 Ectopia cordis has been attributed to intrauterine drug exposure in animal models, a finding which has not been confirmed in humans.(9,10) Although most cases of ectopia cordis appear as isolated sporadic defects, other associated anomalies, including chromosomal abnormalities (trisomy 18), are reported in literature.(11)

Thoracic ectopia cordis can be complete or partial. In partial thoracic ectopia cordis, the heart can often be seen to pulsate through the skin. In complete thoracic ectopia cordis, the naked heart is displaced outside the thoracic cavity without pericardial coverage. The majority of ectopia cordis patients have associated intracardiac defects. Ventricular septal defect, atrial septal defect, tetralogy of Fallot, and diverticulum of the ventricle are the most commonly encountered heart defects.(2,12) The severity and complexity of the intracardiac defect contribute largely to the poor prognosis associated with this anomaly.(2) Most of the infants are stillborn or die within a few hours or days.

Ectopia cordis has also been reported with other congenital anomalies such as abdominal wall defects, cranial and facial malformations, cleft lip and palate, anencephaly, hydrocephaly, neural tube defects, pulmonary hypoplasia, genitourinary malformation and gastrointestinal defects.(1,3)

If the diagnosis of ectopia cordis is confirmed during pregnancy, an early plan should be made for elective atraumatic caesarean delivery. Immediately after birth, the newborn should be stabilized and the lesion should be covered with saline-soaked gauze pads and wrapping to prevent desiccation and heat loss of the exposed viscera.(3) After completing the preoperative evaluation, the baby should be taken promptly to the operation room. Surgical correction of

ectopia cordis is complex and generally requires a staged closure. This involves coverage of the bare or 'naked' heart, placement of the heart into the thoracic cavity, and repair of associated anomalies, particularly intracardiac defects and omphaloceles.(5,12)

Our case belongs to the thoracic type of ectopia cordis. The following associated anomalies were detected: bifid sternum, absence of pericardium, supraumbilical abdominal wall defect, meningocele and valgus foot deformity. Intracardiac and other associated anomalies could not be detected as echocardiography and autopsy was not carried out.

Conclusion

Ectopia cordis is a rare congenital malformation which may require a staged procedure to achieve complete repair. The prognosis of the condition has been poor historically. The number of babies born with this condition seems to be increasing and with the advances in all aspects of medical science the survival of these babies has increased considerably.

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Case Report:
Collodion baby syndrome

***Dr. Varsha H.Chauhan, Dr. Amar .M. Taksande, Dr. K.Y.Vilhekar,**

Key words: *Collodion baby, Ichthyosis, Ectropion*

At birth, Baby is covered by a thick, taut membrane resembling oil parchment or collodion. Collodion baby is a rare inherited skin disorder, affecting around 1 in 600,000 population. It is usually a manifestation of congenital ichthyosiform erythroderma or lamellar ichthyosis. Here we report a neonate who presented with typical feature of Collodion baby.

Case Report

The reference case was product of consanguinous marriage, first issue born by normal vaginal delivery at full term. No history of birth asphyxia. There was no family history of skin diseases. The baby weight 3.5 kg, length 48 cms and head circumference was 35 cm. Vitals were stable. On examination there was loss of hair over eyelid, eyebrow and on scalp. The skin was shiny and severe ectropion in both the eyes was present (fig.1) Ears and nose flattening as well as fixation of lip in 'O shaped' configuration was present. Systemic examination was within normal limits. Laboratory investigation revealed hemoglobin 14.4gm, total leucocytic counts-6800 / cmm and normal platelet count. Staphylococcus coagulase and Klebsiella species growth was present on blood culture. We managed the baby by antibiotic (Cefotaxime and Amikacin) and skin care. Local eye ointment drop was applied.

Initially we put the child on nasogastric feed and slowly breast feeding was started. We discharged the baby after 14 days of Intensive care, on local emollients and exclusive breast feeding. On follow up, after 3 month, baby showed features of Laminar Ichthyosis, but gaining weight and normal development.

Discussion

The collodion baby is a common presentation of severe predominantly autosomal recessive inheritance.(1-3) The patho-mechanism leading to formation of a collodion membrane are not completely understood but point to a disturbed adaptation of the fetus to terrestrial life. Infants that eventually develop lamellar ichthyosis have been shown to harbor mutations in the transglutaminase 1 gene on chromosome 14q12 leading to deficiency of this crucial cross-linking enzyme of the epidermis.(3) Collodion babies are often born prematurely and have increased perinatal morbidity and mortality. At birth, the neonate is covered with a taut, shiny and transparent membrane formed by the thickened stratum corneum that resembles a plastic wrap. Its tautness often leads to ectropion, eclabium and hypoplasia of nasal and auricular cartilage. (3) All the clinical findings were present in our case. Light microscopic and electron microscopic abnormalities of the collodion membrane are non-specific and reveal mostly an excessively thickened, orthokeratotic stratum corneum. Most collodion babies do have a form of ichthyosis and majority of them develop features of lamellar ichthyosis, bullous ichthyosis, X-linked ichthyosis, Netherton's syndrome or Gaucher's disease.

Complications include cutaneous infection, aspiration pneumonia, hypothermia or hypernatremic dehydration. Collodion babies are risk for thermo-instability,

hypernatremic dehydration, complication due to increased transcutaneous water loss, skin infection and sepsis.

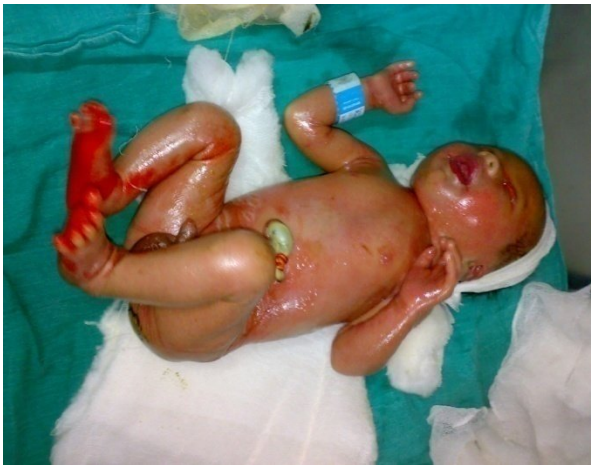

Figure 1. Neonate showing shiny skin and ectropion in both eyes.

It is therefore essential to carefully monitor for temperature, fluid and electrolyte imbalances.(4) To facilitate gradual, cautious peeling and desquamation of the collodion membrane, it is recommended to place the infant in a humidified incubator and to treat the skin with wet compresses as well as lubricants and light emollients that can increase elasticity and pliability of the skin. (5)

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Case Report:
Congenital Adrenal Hyperplasia

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Key words: *Congenital Adrenal Hyperplasia, hirsutism, virilization*

A full term, first in birth order baby delivered vaginally to 24 year old mother out of non-consanguineous marriage. Mother was antenatally registered with regular follow up and antenatal period was uneventful. Antenatal USG was normal. There was no history of drug intake (including hormonal preparations like androgen) during pregnancy. There was no history of maternal virilization like acne, hirsutism, deepening of voice or clitoral hypertrophy. There was no history of early fetal losses or similar anomalous baby in family. Immediate postnatal period was uneventful. Baby was apparently healthy with birth weight 2 kg700 gms with no evidence of dysmorphic features. Complexion was dark all over the body. External genitalia examination of baby showed mark clitoral hypertrophy resembling almost a phallus (length of phallus was 1.4 cm). Labia majora and minora could not be differentiated as they were fused anteriorly; urethral opening was present below phallus. No separate/other opening (vaginal) was detectable. There were no testes or palpable mass in inguinal region. Baby passed meconium and urine immediately after birth. In view of all these findings baby was diagnosed as disorder of sex organ development and baby was shifted to NICU for monitoring as well as further evaluation. The various investigations done included CBC (Hb 14.1gms, TLC 15,000 DLC shows N57, L40, M 2 & E 1), Serum sodium 140mg, Serum potassium 4.2 mg and serum calcium 5.5 mg. The Serum 17 OH progesterone level was increased i.e. 500 ng/ml. Serum 17 OH progesterone is suggestive of congenital adrenal hyperplasia (CAH) due to 21 Hydroxylase deficiency.

Repeat level estimated after about 2-3 weeks was 113 ng/ml. USG abdomen showed isoechoic soft tissue structure with thin echogenic centers seen posterior to urinary bladder (most likely to be Uterus). Both ovaries were not properly developed. There was no obvious isoechoic structure seen on either side in inguinal canal or no abdominal mass or swelling was visualized. Sample was sent for karyotyping and report shows 46 XX karyotype. Patient was diagnosed as congenital adrenal hyperplasia.(1) Apart from routine care baby was started with Prednisolone 2.5 mg once a day and Fludrocortisone 50 micro-gm once a day.

After three months, on follow up the dark complexion has almost disappeared. Cushingoid features were present. The dose of Prednisolone was reduced. Weight of the baby was 5 Kg 700 gms and the length was 60 cms. The clitoral hypertrophy also reduced, labial folds were almost normal and the baby was active with developmental mile stones almost appropriate for age.

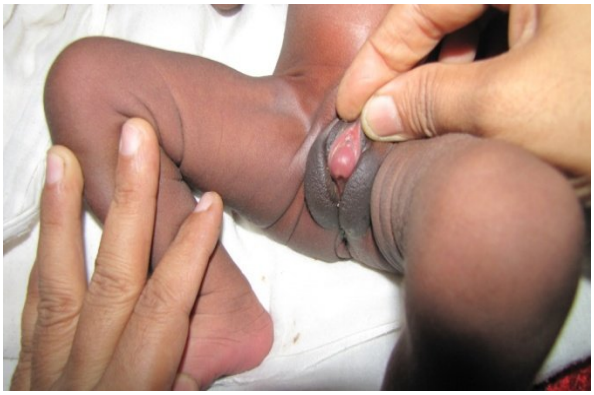
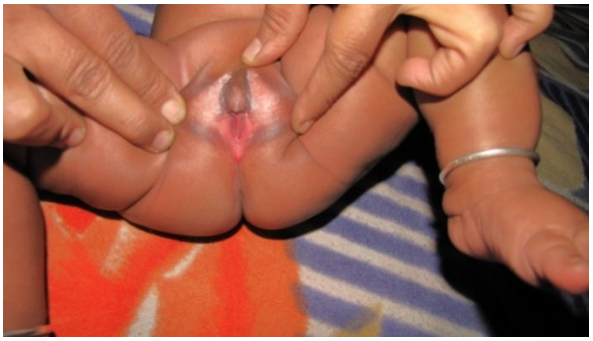


Fig. 1 Photograph of the child before treatment showing dark complexion, Clitoral hypertrophy and fusion of labia.

Aim of publishing this case is the social stigma attached to such type of cases. Definitely after delivery relatives as well as mother are always curious about the sex of the baby. As an expert it was a very difficult situation for us to declare the sex immediately. Second thing when it was a disorder of sex developmental, relatives were very much defiant and aggressive in accepting the baby.



Fig, 2 Photograph of the child after treatment showing fairer complexion, Clitoral hypertrophy has almost disappeared.

Even they were not allowing the mother to feed the baby properly as they were not ready to accept the situation.

But later on when we did all the investigations, confirmed the case of CAH and counseling was done involving obstetrician, pediatrician, pediatric surgeon and endocrinologist the relatives became calm and supportive. The approach in such cases should be multidisciplinary involving the above said consultants. In developing country like India such type of cases may be considered as true hermaphrodites and may spoil their future social life because of stigma attached to such baby. Hence it is important that these conditions are not only diagnosed early but also managed at the earliest.

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Case Report:
Malignant Infantile type of Osteopetrosis in child"

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Key words: *Osteopetrosis, Osteosclerosis, Infantile type*

Introduction:

Osteopetrosis is characterized by the failure of osteoclasts to resorb bone, in which calcified cartilaginous intercellular ground substance is not regularly reabsorbed and replaced by regular osteoid tissue and bone. The major types of osteopetrosis include:

- Malignant (severe, infantile, autosomal recessive) osteopetrosis
- Benign (adult, autosomal dominant) osteopetrosis Types I and Type II.
- Autosomal recessive intermediate form (rare) has a more benign prognosis. This form of osteopetrosis occurs in association with renal tubular acidosis and cerebral calcification due to carbonic anhydrase isoenzyme II deficiency.

Malignant infantile osteopetrosis (MIO) is a hereditary pathology due to osteoclastic cells which are unable to carry out their functions and hence do not resorb osseous tissue. It may have other problems as a consequence of the disease, including short stature, dental problems, hearing loss and blindness. The life-threatening complication is bone marrow failure**.** Bone marrow transplant is the only chance for survival.(1,2) the benign autosomal dominant form is usually asymptomatic and diagnosed incidentally in late childhood. Here, we report a case of infantile osteopetrosis manifesting very late with severe complication.

Case Report:

An 8 years old female child was referred to the Pediatric from the E.N.T. ward as a case of epistaxis and mental retardation. As the child was orphanage and brought by social worker, the detailed perinatal and family history as well as developmental milestone were not known. The child weighed 15 kg with height of 106 cm which falls in PEM grade III according to IAP. On physical examination, she was ill looking and severely anemic. She had bilateral proptosis (fig 1), horizontal nystagmus was present and light reflex was absent. Fundus examination revealed bilateral primary optic atrophy. She had malformed teeth. Per abdomen revealed spleenohepatomegaly. Other systemic examination: respiratory, cardiovascular and neurological were normal.

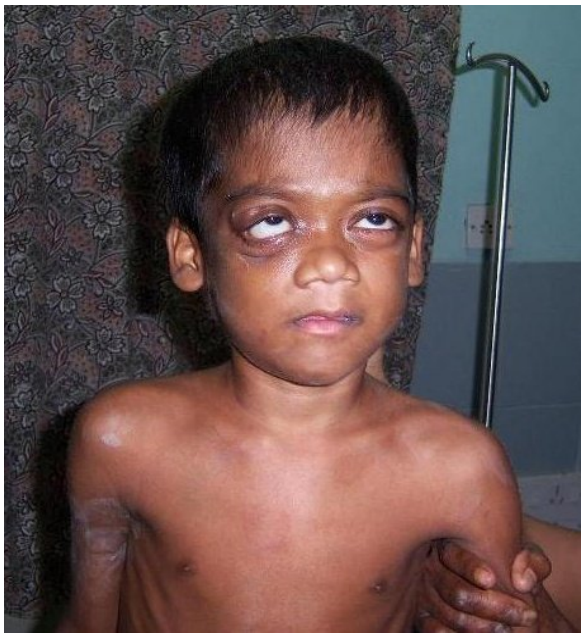

Figure 1. Child has frontal bossing, depressed nasal bridge and bilateral proptosis

Routine investigations of blood, revealed a hemoglobin of 4.7 gm%, total leukocyte count of 11,500/mm^3, with 44% neutrophils, 50% lymphocytes and 6 % monocytes.

Platelet count was 70,000/mm^3. There were no abnormal or immature cells in peripheral smear. Routine urine investigations were within normal limits. Serum calcium level was 9.8 mg/dl with normal serum phosphorus and alkaline phosphatase level. Serum electrolyte and arterial blood gases were normal. 2-D and color Doppler echocardiography was normal. Brainstem auditory-evoked potential showed bilateral absence of auditory-evoked responses, which strongly suggested bilateral deafness. Radiological skeletal survey revealed diffuse osteosclerosis in long bones. X-ray of the skull showed increased bone density (fig2).

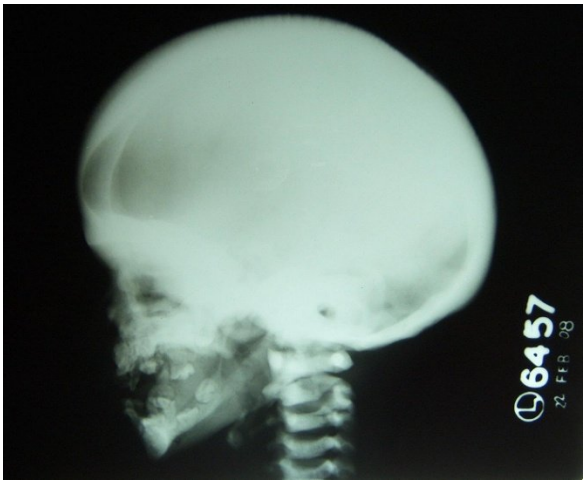

Figure 2. Radiograph of skull showing osteosclerosis and cortical thickening with absence of cortico medullary demarcation of the skull

X-ray of long bones revealed increased bone density and osteosclerosis with loss of cortico-medullary differentiation. Alternating bands of lucent and dense bands were seen on lateral X-ray of spine (fig 3). Her abdominal ultrasound revealed spleno-hepatomegaly. CT scan PNS revealed undisplaced linear fracture of lateral wall and floor of right orbit with hemorrhagic collection in the right nasal cavity and floor of right orbit. MRI brain showed normal study. The diagnosis of infantile osteopetrosis disease was mainly made on clinico-radiological examination. The child received platelet and packed blood cell transfusion. Broad spectrum antibiotics were given for controlling the infection. Symptomatic management of epistaxis was done. Bone marrow transplant was advised for osteopetrosis but the patient was unaffording because of financial condition. We manage the child symptomatically and explained the prognosis.

Discussion:

The German radiologist Heinrich Albers Schonberg first described osteopetrosis in 1904.

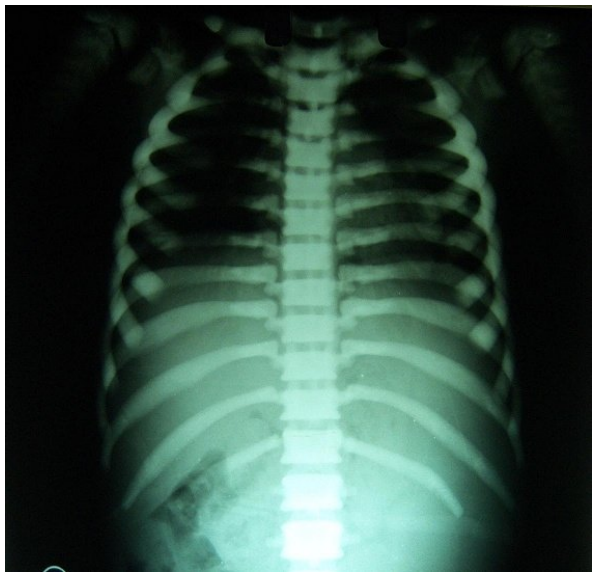

Figure 3. Radiograph of spine (lateral view) showing alternating bands of lucent and dense bands.

The primary mechanism for development of osteopetrosis is the failure of normal osteoclastic bone resorption which results in dense, deformed sclerotic bones. The osteopetrosis are a heterogenous group of disorders which include an autosomal recessive form (Infantile osteopetrosis), two autosomal dominant form (Type I and Type II), and intermediate form autosomal recessive forms of the disease including a rare type of osteopetrosis with renal tubular acidosis and cerebral calcification.(3,4)

In autosomal recessive osteopetrosis, two subtypes namely, vacuolar proton pump deficiency with mutation in ATP6i/TCIRGI

gene and chloride pump deficiency with loss of function mutation in ClCN7 gene cause malignant infantile osteopetrosis (MIO). MIO represents the most severe form of osteopetrosis. Skeletal sclerosis and bone fractures have been detected in utero. Affected infants have progressive leuko-erythroblastic anemia and marked hepatosplenomegaly secondary to extramedullary erythropoiesis. As the bone encroaches on the cranial foramina it result in proptosis, blindness, deafness and hydrocephalus.(5) Neuropathies related to cranial nerve entrapment occur due to failure of the foramina in the skull to widen completely. Dentition might be delayed. Defective osseous tissue tends to replace bone marrow, which can cause marrow failure with resultant pancytopenia. Patients may developed anemia, easy bruising and bleeding due to thrombocytopenia, and recurrent infections due to inherent defects in the immune system.(6) The radiological findings are increase in bone density with defective metaphyseal remodeling. Alternating bands of lucent and dense bands produce a sandwitch appearance to vertebral bodies is diagnostic and was seen in the mentioned case. (7) These form of osteopetrosis usually results in death because of severe anemia, bleeding or infection by two years of age.(1,6) In our patient, all the clinic-radiological finding of infantile osteopetrosis along with complication were present.

Two subtypes of autosomal dominant osteopetrosis have been described. Type I carries mutation in chromosome 11q12-13 and Type II associated with dominant negative ClCN7 mutation.(4) Type I autosomal dominant form of osteopetrosis (ADO), shows radiographic abnormalities in the form of diffuse osteocondensation, including greatly increased skull calvarial thickness. Otherwise, individuals are relatively asymptomatic without fractures or abnormal laboratory tests. It is usually detected by a family history of bone disease or as an incidental radiologic finding. Type II ADO, is the most common form with prevalence of 5.5 in 100,000. The affected individual can be asymptomatic during childhood, most have at least one early complication of the disease. These complications include pathological long bone fracture, bone pain, and osteomyelitis. Rarely they may have bone marrow suppression.(3,6)

Intermediate forms of osteopetrosis are generally autosomal recessive and are due to deficiency of carbonic anhydrase II (CA II) and associated with renal tubular acidosis. Along with this, many patients had growth failure, dental malocclusion, sensorineural hearing loss, intracerebral calcifications, and show varying degree of mental retardation.(8)

The course of illness in infantile osteopetrosis is progressive and these children do not survive long. Hematopoietic stem cell transplantation (HSCT) is the only potentially curative approach for this disorder. Supportive treatment includes nutritional support, blood transfusion, platelet transfusion and control of infections by antibiotics. Variable and mostly transient responses have been observed after treatment with intravenous parathyroid hormone, high dose calcitriol and corticosteroids and interferon gamma.(9,10) In conclusion, the prognosis of child with malignant infantile osteopetrosis with complications is very poor and we have to manage the patients supportively.

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Media Watch / Around the World:

Dr. Shweta Pagore, Dr Satish Agrawal

Beware of Anti-Inflammatory Drugs if you are having pregnancy

A study published in CMAJ (Canadian Medical Association Journal) says that the risk of miscarriage is 2.4 times greater for women who took any type of and dosage of non-aspirin non-steroidal anti-inflammatory drugs (NSAIDs) in early pregnancy. A researcher looked at 4,705 cases of miscarriage up to 20th week of gestation. 352(7.5%) women took NSAIDS; women in control group who did not have miscarriage, 1213(2.6%) had been exposed to NSAIDS.

The use of NSAIDS during pregnancy is associated with statistically significant risk (2.4 fold increase) of having spontaneous abortion. The study says that the risk of having a spontaneous abortion was associated with gestational use of diclofenac, naproxen, celecoxib, ibuprofen and refecoxib alone or in combination. The highest risk was associated with diclofenac alone and the lowest risk was in users of refecoxib alone. However dosage of NSAIDS did not appear to affect the risk. (www.alatimes.com 2011/09/11)

Comment*: Females having slightest suspicion of pregnancy should know the consequences of taking drugs on their own especially NSAID, which are available as OTC (Over the Counter) products.*

Why only humans are affected by Influenza B Virus?

Scientists have made a new discovery that could help explain how influenza B is limited to humans. Researchers at Rutgers University and university of Texas at Austin discovered the study design which helps scientists to develop drugs to fight seasonal influenza B strain induced epidemics. A three dimensional structure of a complex between an influenza B virus protein and one of its human protein targets results in suppression of the cells, natural defences to the infection and paving the way for the virus to replicate efficiently. This study shows the basis by which non-structural protein 1 of influenza B or NS1B binds to human host proteins and immobilizes it to prevent it from fighting the virus. That human protein known as interferon stimulated gene 15 proteins or ISG 15 is an essential part of the defence mechanism that human cells use to protect themselves from virus infections. Chemicals that block the binding of NS1B to IGS 15 may have the antiviral potential against Influenza B. www.webmed.com

Comment*: Such studies exploring host-virus relationship may prove to be useful not only for making effective drugs but also for vaccines against such highly prevalent influenza virus.*

Wrist size may predict Diabetes, Heart Risk in Kids

A study by research at Sapienza University Rome suggested that measuring an overweight child's wrist could be a better predictor of diabetes and heart risk than calculating Body Mass Index. According to the study wrist size is strongly correlated with insulin resistance in overweight children. The study included 477 overweight or obese children and teens living in Italy. Wrist circumference was calculated using a cloth tape and 51 of the children also underwent imaging tests to precisely measure wrist bone v. wrist fat. All the children also had tests to determine their insulin levels and whether they were insulin resistant. The

analysis indicated that wrist circumference accounted for between 12% and 17% of variance in insulin levels and insulin resistance. In contrast BMI accounted for about only 1% of variance; also the imaging test confirmed that bone mass and not fat was most strongly correlated to wrist size. Thus wrist circumference proved to be a much more sensitive clinical marker than BMI for evaluating children for insulin resistance and this is because extra insulin in blood is associated with both bone growth and insulin resistance. www.webmed.com

***Comment**: Why not to give a trial to such an easy clinical marker to determine its sensitivity and specificity in our set up!!*

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INDIAN MEDICO-LEGAL & ETHICS ASSOCIATION

Dear Colleagues, Warm regards

Please accept the seasons greeting on behalf of we all. The practice of medicine has changed drastically in the twenty first century. There have been many positive as well as negative changes in medical sciences. The good age-old doctor-patient relationship is in doldrums. The communication skills have almost been forgotten. Commercialization is the obvious agenda especially with the development of corporate culture in the health sector. The concept of privatization has added fuel to the fire. The patient, who are willing to pay feel that the life can also be purchased with money. This has resulted in soaring expectations. Because of all these doctors are not only affected by medico-legal cases but many other legal problems arising out of other related issues of staff, instruments & infrastructure. The Government is coming up with newer and newer laws and restrictions on medical fraternity and hospitals. We have experienced this on many occasions, which prompted us along with some other colleagues & friends to form a medico-legal & ethics association.

In last few years, we found various problems, which as a medical consultants / medico-legal experts we were trying to solve single handedly. It was then, that we realized the need of a fleet of experts to work in co-ordination. The association has thus being formed to help you in preventing a disaster in your practice. We hope that we will succeed in achieving the aims and objects of guiding the medical practitioners in their difficult times. The various membership benefits include:

1) Personal / individual professional indemnity cover for upto five years (Amount and terms decided by Executive Board) included in life membership.
2) Hospital insurance at concessional rate (as compared to other insurance / risk management companies).
3) Free med-legal guidance in hours of crisis.
4) Services of crisis management committee at city / district level.
5) Free expert opinion if there are cases in court of law.
6) Services of legal experts at concessional rates (wherever available).
7) Participation in academic activities related to med-legal issues.

All this can't be achieved without the help of dedicated, hard working, sincere members of the association. Hence, we would like you to become the member of this association. We hope that with active & enthusiastic members like you, our association will attain greater heights as we progress further. Please send your constructive criticism, suggestions, and programs for the future.

Yours truly
Dr. Balraj SinghYadav
(Secretary)

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INDIAN MEDICO-LEGAL & ETHICS ASSOCIATION
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Medical/legal qualification	University	Year

Experience in legal field (if any) ----------
Name, membership no. & signature of proposor :----------
Name, membership no & signature of secondor :----------

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(Attach separate sheet)----------
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C) Do you have Hospital Insurance: Yes / No
Name of the Company: Amount:
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Name of the company: Amount:
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Place of Practice: Specialization:
F) Any other information you would like to share: (Please attach the details)

I hereby declare that above information is correct. I shall be responsible for any incorrect / fraudulent declarations.

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Life Membership fee (individual 2500/-, couple 4000/-) by CBS (At Par, Multicity Cheque) or DD, in the name of Indian medico-legal & ethics association (IMLEA) payable at Amravati. Please send the Cheque/DD to Dr. Satish Tiwari, Yashodanagar No.2 Amravati 444606.

MEMBERSHIP FORM

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State:_____ Nationality: _____

Telephones: (STD Code) _____

Mobile: _____

Email ID: _____

Medical / Pediatric Qualification	**Name of the University**	**Qualifying Year**

MBBS Registration No. & Registering Authority (e.g. MCI or State Medical Council):-

_____

Short Curriculum Vitae with area of interest (within 10 lines):-

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Place: Signature of the Applicant

Date:

(In hardcopy)

Recommendation of the Nodal Person:-

The statements above are true to best of my knowledge. His/her membership may be accepted.

Name of the Nodal Person: _____