### Indian Journal of Forensic Medicine and Pathology

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### A Journey from Indian Lunacy Act 1912 to Indian Mental Health Act 1987 & Draft Amendment

Behere Prakash B.\* Rathod Anupam V.\*\* Behere Aniruddh P.\*\*\*

"The withering away of the old and the establishment of the new are but natural in the passage of time."

- Sage Bavanandi Nanool

#### Indian Lunacy Act 1912

Ever since the Indian Lunacy Act had come into existence in 1912, it indeed revolutionized the perspectives of mental illness in the country.

In India, the care of the mentally ill in asylums (now called as mental hospitals) is a British innovation. Prior to this, the mentally ill were neither neglected or ill treated, but were managed according to traditional Indian practices as evidenced by elaborate descriptions of various forms of mental disorder in separate treatises in Ayurveda.

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Before the 1912 Act came into effect, the various enactments controlling the care and treatment of the mentally ill of the then British India could be enumerated as -

a) The Lunacy (Supreme Courts) Act, 1858 (Act XXXIV of 1858), b) The Lunacy (Districts Courts) Act, 1858 (Act XXXV of 1858), c) The Indian Lunatic Asylums Act, 1858 (Act XXXVI of 1858). d) The Military Lunatics Act, 1877 (Act XI of 1877), e) The Indian Lunatic Asylums (Amendment) Act, 1886 (Act XVIII of 1886), f) The Indian Lunatic Asylums (Amendment) Act, 1889 (Act XX of 1889), g) Chapter XXXIV of the Code of Criminal Procedure, 1898 and h) Section 30 of the Prisoners' Act, 1900.

The first three Acts were enacted immediately after Queen Victoria's proclamation when India came under the rule of the British Crown. With the introduction of the Indian Lunacy act of 1912, a new approach was carved out for providing consideration and care to patients with mental illness. Indian Lunacy Act claimed that it was an Act for the care, custody and management of lunatics as understood in the legal connotation of the term. It was ironic that though the Act dealt with persons suffering from mental illness the

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basic consideration of the Act was legal rather than medical.

For instance, according to this Act, a patient could only be admitted to a mental hospital by the reception order from a Judicial Authority, a Magistrate or a Police Commissioner. Surprisingly, this method was in no way different from admission into a jail i.e. imprisonment. Is it a legal offence to suffer from mental illness? Certainly this was not the case.

Also, a basic defect of the Act was that a patient who was sent into a mental hospital was going to stay there for the rest of his life. This was connected with the popular belief 'once insane always an insane'.

Under various criticisms, the law was replaced with provision for treatment of all forms of mental disorders with relatively easier & prompter methods of admission into mental hospitals. Unfortunately, it took almost 75 years to amend the law i.e. Mental Health Act 1987 which intended to rectify previous act's lacunae so it could stand the test of time.

#### Mental Health Act 1987 (MHA)

The MHA, 1987 is an advancement on its predecessors, the Indian Lunacy Act 1912 and the above mentioned acts. In a nutshell, the following features of MHA, 1987 distinguish it from its predecessors – a) Mental illness was clearly defined & absurd words like ' imbecile' and 'idiots' were removed, b) Modern concepts of mental illness and treatment were included, c) Role and importance of medical officers was defined, d) Simplification of the rules for admission and discharge & provision for voluntary admission, e) Protection of rights of the patients, f) Providing for supervision for the standard of care in psychiatric hospitals, g) by creating the Mental Health Authority, h) Provision of penalties in case of breach of laws in connection with welfare of the patients and i) Care was the ultimate aim and not custody alone (Banerjee).

However, the MHA, 1987 has been through rough waters ever since it came into pragmatic being in 1993. Subsequently, there have been substantial critiques of the act, the following being some of them: a) Overly legal in its scope, process and outcome, stressing upon custody with little regard for therapeutic aspects of psychiatric care, b) Establishing similar legal controls upon both voluntary and non-voluntary classes of patients, and c) Being discriminatory towards nongovernmental institutions of psychiatric care.

Another reason for the act's unpopularity is its relative silence on the more practical aspects of patient care that psychiatrists face on a daily basis. Traditional Indian families carry out many of the responsibilities and duties that in a developed country would fall with the social services. Despite the ready availability of the family to share the burden of caring for the mentally ill, the process of seeking and receiving treatment under the Mental Health Act 1987 is exceedingly arduous, more punitive and less therapeutic, and cannot only isolate the patients and professionals involved , but also stigmatize them (Trivedi, 2002).

#### Limitations of MHA – 1987

1. The procedural difficulties that it poses for users may discourage mentally ill patients' and their families from using it. This may lead to increasing stigma for the patients and their families, thereby forcing the pursuit of alternative and dubious forms of 'cures' and may lead to desertion of the patients by their families. Keeping these key-issues in consideration, it was felt that the MHA 1987 was archaic and needed amendments.

2. The Indian Psychiatric Society addressed the concerns that Mental Health Act, 1987 needed to be replaced with a new Act, which would take into consideration the cultural context of Indian society and the ground reality about available resources.

3. The current MHA is un-implementable in large parts of the country because it heavily

depends on intramural treatment settings, which are scarce and do not utilize family and community resources which are available.

4. It was felt unanimously that the law should move towards supporting, promoting and protecting the rights of persons with mental illness. It was also felt there should be a departure from the policy of dealing with mental illness just as a law and order problem, the focus should be community care and a range of support systems should be incorporated into the MHA. Hence it was ensured that the proposed amendments were in harmony with the United National Convention on Rights of the Physically Disabled (UNCRPD) which India ratified in May, 2008.

### MHA Amendments & Proposed Draft

Although, the Ministry of Health and Family Welfare has taken an initiative to amend the Act, but so far nothing have come up with a new act till today. Probably for the reason of expediency, the Indian Psychiatric Society decided to support the process of amendments with the hope that the process of forming a new Act will also be taken up in not too distant future. Therefore, MHA amendments were put forth with a view to rejuvenate the existing law and rectify it where necessary.

Accordingly, few of the old unacceptable terminologies were judiciously replaced & certain changes in areas viz. treatment setting, treating persons, carers, regulating authorities, admissions and discharges including voluntary as well as under special circumstances, reception order and inquisition were made. There is an inclusion of a whole chapter on the protection of rights of the mentally ill patients.

### Criticism of the Draft Amendment

Unfortunately, the amendment has also been criticized over following reasons-

1. The present amendment process to the Mental Health Act is only looking at protecting

the rights of persons living with mental illness in the context of treatment seeking.

2. The amendments to the Mental Health Act remain oblivious of the parallel process of alignment of Persons with Disabilities Act to UNCRPD.

The amendments to the Mental Health Act are thus being seen as an isolated activity and there is no effort to see which other laws will need to be aligned to UNCRPD to ensure that the objective of UNCRPD is met.

Hence there has been opposition to the process of the amendments to the Mental Health Act as it is non-participatory and is against the principles of UNCRPD. There is relevant saying "If we open a quarrel between past and present, we shall find that we have lost future" by Winston Churchill.

It is the need of time to take this opportunity to underline the meaning of the fact that India has ratified the UNCRPD. The ratification implies that no person living with mental illness can be treated in a discriminatory manner on the basis of their illness and that all persons living with mental illness have the right to live their life with dignity, without fear of torture, degrading treatment, exploitation and abuse.

All persons living with mental illness have the right- a) to make decisions regarding their own life, b) to live independently in their community, c) to marry & raise families, d) to have access to education, work, employment and health, e) to manage their own affairs and the government has to put in place arrangements to support such decision making processes.

All persons with mental illness can form associations, represent themselves, enter contracts, make wise, vote and stand for election like all other citizens of India. UNCRPD is the journey to equal citizenship for persons with mental illness and the beginning of this journey is a commitment to change all laws, policies, cultural practices that discriminate against persons living with mental illness. 128 Behere Prakash B. et at, A Journey from Indian Lunacy Act 1912 to Indian Mental Health Act 1987 & Draft Amendment

Any process that does not fulfill the commitments made through ratification needs to be opposed and changed. It is also essential to consult first with the right holders and caregivers across India regarding the proposed draft amendments to determine response. Hence, it is highly desirable to watch the process on the dimensions of participation, inclusion and nondiscrimination in coming years. There is a long journey ahead.

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### "PC & PNDT Act"- How the Doctors contemplate?

Kumar Lavlesh\* Hallikeri Vinay R.\*\* Agarwal Swapnil Sudhirkumar\*\*\* Honnungar Ravindra S.\*\*\*\*

### ABSTRACT

**Background & Objective:** In view of the ever increasing difference in sex ratio because of rampant feticide, the Government of India enacted, in 1996, the Pre-Natal Diagnostic Techniques (PNDT) Act. Although the act is primarily meant for practicing obstetricians and radiologists, literature on their perception on the PC & PNDT Act is scant. **Study design:** Cross-sectional study. **Methodology:** A total of 38 participants were given structured questionnaire to find out their awareness and perception; and explore their viewpoint regarding various aspects of this Act. **Result:** 58% felt that this Act is not the only tool for improving the skewed gender ratio. 97% expressed that publicity through the media on this issue discourage the doctors in breaking the provisions of the Act. 66% of the participants agreed that the penalties are heavy for contravention of the Act. **Conclusion:** Participants approved the act but expressed that some issues need to be addressed. Some amendments they wanted in their favour too; probably because it is an easy source of income.

Key words: Pre-Natal Diagnostic Techniques Act, sex ratio, ultrasonography

### INTRODUCTION

The child sex ratio is a powerful indicator of social health of any society <sup>[1]</sup>. Calculated as the

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number of girls per 1000 boys in the 0-6 years age group; this ratio has shown a sharp decline from 976 in 1961 to 927 as per the 2001 census. In certain parts of the India, this ratio is even below 800. The declining child sex ratio has its roots in the practice of sex selective abortion or female foeticide.

Sex selection has many facets and forms: from female infanticide to female foeticide and the technologically sophisticated pre-conceptional sex selection <sup>[1]</sup>. The various modalities used for sex detection include amniocentesis, chorionic villus sampling. The latest method debuted and most widely spread for the diagnosis of fetal sex is ultrasonography. It is the least expensive and user friendly among available methods and is performed around 10<sup>th</sup> week of pregnancy. India

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has currently 34,012 registered ultrasound clinics <sup>[2]</sup>.

#### RESULTS

According to a National Family Health Survey, an estimated 1 million sex selective abortions are performed annually <sup>[2]</sup>. To curb this, the act was amended in 2003<sup>[3]</sup> which prohibit use of sex selection techniques ante-nataly as well as pre conceptionally. The prescribed penalties under this act are kept to dissuade people from engaging in these methods. However, since the enactment, only 416 cases were filed till Dec'2007, out of which only fifteen convictions were made [2]. Considering the result of the NFHS survey, and the number of cases filed or convicted under this act, there seems to be clear lacunae in the implementation of the act. Hence the present study was undertaken to assess the awareness, perception and viewpoint of the doctors on the PC & PNDT Act.

### **MATERIALS & METHODS**

The proper implementations of PC & PNDT Act are primarily shouldered by obstetricians and radiologists and hence were selected for personal interviews in South, Central and North Karnataka. Out of total 38 participants, 22 were obstetricians and 16 were radiologists. The participants consisted were 19 men and 19 women and 92% of them were Hindu. Most were young, mean age being 32 years.

The participants were given structured questionnaire to find out their perception and awareness; and also to know their viewpoint in regard to various aspects of this Act, viz. usefulness, impact of involvement of media, difficulties faced, penalties and punishment for violation, genuineness of information (Forms F & G), gender determination demand and suitable amendments in the PNDT Act. The study was undertaken between August and October 2009. The data thus collected was analyzed by using, SPSS version 11.0.

58% of the participants disagree on the point that PC & PNDT Act is the only tool for improving the skewed gender ratio. 66% expressed that the penalties are heavy for contravention of the act, while 34% have their opinion that it is not sufficient and should be raised.

97% of the doctors were of the view that media publicity of court cases pertaining to breaches of the PNDT Act can be beneficial for improving the gender ratio as it may set an example and discourage the doctors in violating this act.

In regard to authenticity in filling up the form F & G, 61% expressed their genuineness; 23% stated that the information furnished were absolutely false, while 16% of the doctors preferred not to disclose.

A demand from the patient for sex determination was made to 61% of the doctors. Such demand was mostly made by multigravida (97%).

66% of the doctors seems satisfied and did not find difficulty with registration of a sonography machine on a periodical basis i.e., every 3 years. Whereas, 34% of the doctors felt that it should only be 'one time registration'. However there was significant difference between Radiologists and gynaecologists; 56.3% of radiologists were in favour of dropping the current provision while 81.8% of gynaecologists wish to continue with it (p=0.0361).

89% of the participants told that all involved (the patient, doctor and family members) should be prosecuted; while 11% felt that only the family member should be held responsible for contravening of the Act.

Majority (61%) expressed that some suitable amendments to the existing act need to be done, whereas 39% opined that the act is fine as such.

#### DISCUSSION

This study reflects the existing mindset of the society towards the girl child as 61% doctors

clearly affirmed the demand for gender determination almost exclusively by multigravida (97%). The main reason is that the Indian society is based on "son preference" value, the girl child considered "paraya dhan" and also economic liability (dowry).

More than half of the participant doctors (58%) do not consider the Act as only tool and other measures must be considered to improve the falling gender ratio. Furthermore, 97% of the doctors felt that media publicity of court cases violating the Act can be an effective solution.

As the demand for sex-selective abortion is mainly from the patient and family side, the act should not be doctor-oriented; rather the adopted measure should be multi pronged which may bring change in the collective awareness. It has been argued that there is no better route for this than the field of arts, be it music, a 'nukkad natak', a verse, a 'ghazal', a painting or a film<sup>[1]</sup>.

A majority of the doctor does feel that the penalties for contravention of the Act are too stringent and were in favour of liberalization for minor lapses. More percentage of obstetricians (68%) were in favour of some amendments in the existing Act, contrary to the findings of Dutta<sup>[4]</sup> where more radiologists were favouring the same. It remains to be poorly understood why the obstetricians have the tendency of escaping from law and getting meagrely penalized for wrongdoings.

The general consensus in our study is that apart from doctors, all involved like patient and family member involved should also be penalised. Yadav in her article mentions similar findings<sup>[5].</sup> This is in contrary to provision of the act where punishment is laid down for doctors only.

The law has its own place but has been hampered by difficulties in implementation and societal apathy. Difficulties experienced by doctors include excessive clerical work topping the list (39%), administrative difficulties (18%), excessive police interference (05%) and social difficulties (08%). Harassment of doctors of diagnostic centres by health officials in Ludhiana was reported by the Ludhiana Tribune<sup>[6]</sup>.

#### CONCLUSION

Global review shows evidence of many reports from Asian countries reporting an increase in induced abortion when a prenatal diagnosis of a girl is given. On the contrary, in western countries not a few papers are reporting a slight decrease in sex-ratio; especially in Atlantic region of Canada. However, this is still an evolving area of concern and there are many quandaries and uncertainties. A growing number of countries grapple with the issue of sex selection has asked WHO for guidelines on the subject regulation of technology.

In Indian scenario, to address the skewed gender ratio, the legislations need not be doctorbased; but should more be society- oriented. Other multi pronged measures also need to be implemented simultaneously as PNDT Act is not considered by majority to be the only tool to improve the gender ratio. The participants approved the act but expressed that some suitable amendments need to be done. Some amendments they wanted in their favour too probably because it is an easy means to make money. The need of hour is to sensitize the population about the hazards of distorted gender ratio, only enactment of a law can never be helpful in curbing such a menace.

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### Role of Foot Length in Estimation of Stature of Central Indian Population

### M. R. Shende\*

### P. Bokariya\*\*

#### ABSTRACT

Background: The work on estimation of stature from foot length was being carried out since long but data pertaining to regional variations are very few with respect to published literature. Height, like other phenotypic traits, is determined by a combination of genetic and environmental factors. It is sexually dimorphic and statistically more or less normally distributed. Estimation of stature from measurements of various long bones of the extremities has been attempted by many scientists with varying degree of accuracy. All such calculations depend on the fact that limbs exhibit consistent ratios relative to the total height of a person. Objectives: This study was carried out to investigate the relationship between personal stature and foot length among a group of male and female Central Indian adults and to derive a regression formula between the foot length and height of an individual. Materials and Methods: The subjects consist of 391 medical students from various colleges in central Indian population (Vidarbha region of Maharashtra) ranging between 18 to 22 years of age of similar socio economic status. The length of foot and the height of the subject were measured with using standard anthropometric instruments in anatomical position. Measurements were taken at fixed time to avoid diurnal variation and were carried out by a single person to eliminate the personal factor. The result obtained was analyzed and attempt was made to derive a formula between head length and the total height of an individual. Results: The differences of the foot length between the genders were found to be highly significant. A positive correlation between height and foot length was observed in both sexes and it was statistically significant. Regression equation for stature estimation was formulated using the foot lengths for both sexes. Conclusion: The results indicate that foot length provides an accurate and reliable means in estimating the stature of an unknown individual. The regression formula derived in this study will be useful for anatomists, archeologists, anthropologists and forensic scientists.

Key words: Anthropometry, Foot length, Total height, identity of individual.

### INTRODUCTION

To assess the height of individual from measurement of different body parts of body has always been of particular interest to Forensic experts to establish the identity of an individual. It is also useful to Anatomists and Anthropologists to find the racial differences. The estimation of height from various parameters has been observed

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by various workers. In 1961 a study was conducted and the result of study showed that the correlation between height and foot length<sup>1</sup>. Another similar study was conducted on height and foot length and derived a correlation coefficient for foot width and foot length<sup>2</sup>. Although many workers <sup>3,4,5,6</sup> were derived the formula to estimate the height of the individuals from foot length but data from the central part of country is lacking. Therefore, we have planned to conduct such study to make available data pertaining to relation of foot length and height of an individual. This study is also aims to evaluate the sexual differences in the correlation and the equation of regression is derived using the data obtained.

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### MATERIAL AND METHODS

The 391 young subjects included 165 males and 226 females are selected from various colleges of Vidarbha region of Maharashtra. The age ranged from 18 to 22 years and of similar socio economic status. The length of foot and the height of the subjects are measured using standard anthropometric instruments in anatomical position. Measurements are taken at fixed time (2 to 5 pm) to avoid diurnal variation and are carried out by a single person to eliminate the error due to personal factor. A written informed consent is taken by all the subjects.

### **Measurement of Foot Length**

The subjects are made to stand on a precalibrated osteometric board with bare footed in such a manner that the posterior point of the heel is gently touched the backrest part of the board. A vertical stop is placed against the anterior most point of foot i.e. the tip of hallux or tip of second toe (if toe is larger than hallux)<sup>7</sup>. The distance between the posterior most point of the heel and anterior most point of the foot is measured as foot length in centimeters (Shown in figure I).

# Figure I: Figure showing measurement of Foot length



# Figure II: Figure showing measurement of total height of an individual



### Measurement of Height of Individual

It is measured by the wooden height measuring instruments marked in centimeters. The subjects are asked to stand barefooted in Anatomical straight position. The sliding head plate is brought into firm contact with the vertex of the subject<sup>7</sup>. (Shown in figure II)

The data on the measurements of the subjects are recorded in predesigned Performa and statistically analyzed using computer software -EPI 6. The findings are presented in the tables.

### RESULTS

Total 391 young subjects comprised 165 males and 226 females from various colleges of Vidarbha region of Maharashtra are included in the study. The data for personal height and foot length for both the sex are shown in Table-I. The correlation coefficient for foot length was evaluated as 0.755 for males and 0.335 for females. Using this correlation coefficient regression equation for calculating height from foot length has been derived which is shown in table II.

On basis of regression equation the estimated height is calculated and then root mean square deviation is calculated by observed value and estimated height. The root mean square deviation is obtained as 0.35 for males, 4.35 for females and 4.71 when both males and females are combined. significantly. This may be due to genetic differences, to childhood lifestyle differences or to both. Correlation coefficient between stature and foot length was found to be statistically significant and positive indicating a strong relationship between the two parameters. Regression equation for stature estimation was formulated using foot lengths and checked for

Parameter	Sex	Range (in cm)	Mean	SD
Height of Subject ( in cm)	Male	153.4 - 189.2	170.12	6.99
	Female	140.8 - 174.0	156.15	11.10
Foot length (in cm)	Male	22.0 - 29.4	25.83	1.27
,	Female	20.5 - 27.2	23.42	1.08

### Table I: Showing range, mean and SD of height and foot length for males and females

### Table II: Showing regression equation from foot length of males, females and combine (both male & female)

Sex	<b>Regression</b> Equation
Male	$y = (63.32) \pm (4.13) x$
Female	$y = (78.22) \pm (1.11) x$
Combine	$y = (44.39) \pm (4.81) x$

Where y is height of an individual and x is foot length

### DISCUSSION

The present study shows a correlation coefficient of ±0.755 for males and ± 0.335 for females which is most significant. A study was conducted by Suneel Q (1980) to develop a model for reconstruction of height from foot measurements in an adult population of northwest India and observation showed that the correlation coefficient between height and foot length in Gujarat population was shown to be  $\pm$  0.69 for males and  $\pm 0.70$  for females<sup>5</sup>.

The average height for each sex within a population is significantly different, with adult males on average being taller than adult females. It is stated that the gender difference in height may be attributed to sex chromosomal differences. Adult height between ethnic groups often differs

their accuracy by comparing the estimated stature and the actual stature. The results indicate that foot length provides an accurate and reliable means in reconstructing the stature of an unknown individual. Furthermore, ossification of the bones of the foot occurs earlier than the other long bones of the lower extremity. Therefore, even during adolescent age, height can be predicted more accurately from foot measurements than from the other long bones of the lower limb. Results obtained from a study that attempted to reconstruct stature from various dimensions of feet demonstrated the highest correlation coefficient and the lowest standard error of estimation between the stature and foot length.

Significant and positive correlation coefficient has been shown to exist between stature and measurements of foot length. Taken together the evidence suggests that the relationship between foot length and stature is of practical use in medico legal, anthropology and archeological studies when such evidence provides the investigator the only opportunity to gauge that aspect of an individual's physical description.

#### CONCLUSION

The results indicate that foot length provides an accurate and reliable means in estimating the stature of an unknown individual. The regression formula derived in this study will be useful for anatomists, archeologists, anthropologists and forensic scientists.

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### Cephalic Index of Eastern Part of Indian Population

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#### ABSTRACT

**Background and objectives:** Cephalic Index is an important parameter for deciding the race and sex of an individual whose identity is unknown. The present study was undertaken : 1) To determine the Cephalic Index in students coming from Eastern region of India, 2) To know the distribution and role of sex on Cephalic Index. **Methods:** Students were selected in the age group of 17-20 years coming from Eastern region of India. Maximum head breadth and maximum head length were taken using spreading caliper and Cephalic Index was determined. **Results:** Mean Cephalic Index of the students coming from Eastern region of India is 80.74. Distribution of Mean Cephalic Index among males was 80.20 and females 81.72. **Conclusion:** The results of these measurements are used in Pediatrics, Forensic Medicine, Plastic surgery, Oral surgery, Dentistry and Diagnostic comprehension between patient and normal population.

Key words: Race; Anthropology: Cephalic Index;

### INTRODUCTION

Charles Darwin defined evolution as "Descent with modification". It is simply genetic change over time. The principles of modern evolutionary

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theory have withstood years of scrutiny and scientific challenges. Physical anthropology is a science founded on evolutionary and genetic principles. It is important to realize that evolution is a documented fact. The relative frequencies of genes change over time because of several evolutionary processes or mechanisms. Mutation, genetic drift, migration, hybridization, gene flow and isolation are important among them. Natural selection is the guiding force of evolution.

Biological anthropology is the science that considers human as biological organisms in terms of both their evolutionary history and biological variation.

> Maximum head breadth Cephalic Index<sup>1</sup> = -----X100 Maximum head length

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Cephalic Index was studied by Franz Boas between 1910 and 1912 that most effectively challenged the value of the method. Boas studied the children immigrants to the United States noting that children's Cephalic Index differed significantly from their parents implying that local environmental condition has a significant impact on the development of the head shape.<sup>2</sup> Present study was undertaken to find out the cephalic index of the eastern region of India.

### MATERIALS AND METHODS

To study Cephalic Index (CI) of eastern region of India, students were selected in the age group of 17-20 years coming from different regions of India. As per the survey of India outline map, India as a whole has been divided into four regions, they are North, East, West and South. States, which are included in the eastern region are, Assam, Bihar, Orissa, West-Bengal and Jharkand.

### Source of data

- 1. Medical students studying in J.J.M. Medical College, Davangere.
- Medical students studying in S.S Institute of Medical Sciences and Research Center, Davangere.
- 3. Dental students in College of Dental Sciences, Davangere.
- 4. Dental students in Bapuji Dental College and Hospital, Davangere.

Consent of the students was taken to measure the head length and head breadth, and they were asked to fill the proforma before taking the measurements. They have also consented for their names to be included in master chart to be published. College Ethical Committee clearance has been taken for the above study.

### Data collected

\*Maximum breadth of the head.

\*Maximum length of the head.

### Method of collection of data

Head measurements are determined by Spreading caliper with subject sitting in relaxed condition and head in Anatomical position. Spreading caliper is used for taking measurements of head. It consists of two long arms which are curved outwards and bounded at one end. This is having both side blunt ends, which is used for taking measurements from livings. A meter scale is fixed to one of the arms, which passes through a socket on the other arm.

Land marks taken to determine the maximum head breadth and maximum head length<sup>8</sup>:

- 1. Glabella: the most prominent point in the mid sagittal plane between the eyebrows.
- 2. Opisthocranion: the point of most backward projection of the head in the mid plane.
- 3. Eurion; the most lateral point on the side of the head.

Maximum head length is the distance between the glabella and the opisthocranion and maximum breadth is calculated between the eurion of both side found at a point over each parietal bone.

The landmark must be the horizontal and frontal plane. Hold the spreading caliper in such a manner either behind or in front of the subject that the joint of the caliper is in the mid-sagittal plane of the head. Now slide the tips of the caliper from forward to backward and vice versa in zigzag manner. Take the maximum reading. Note that the line joining the two tips of the caliper must be at right angles to the mid sagittal plane.<sup>2</sup>

### RESULTS

The collected data statistically analyzed and the results are presented in the table with Mean, Standard deviation, Number and Percentages. The table -1 depicted that in the Eastern region of India out of 130 males the maximum were mesocephalic (41.5%) followed by brachycephalic (40.0%), hyperbrachycephalic (10.85) and dolichocephalic (7.7%). While in female maximum were brachycephalic (48.6%), followed by mesocephalic (28.65), hyperbrachycephalic (14.3%),

ultrabrachycephalic (5.7%) and only 2.9% were dolichocephalic.

Cephalic phenotype	Cephalic Index	Male		Female		Total	
		No.	%	No.	%	No.	%
Ultradolichocephalic	55.0 to 59.9	-	-	-	-	-	-
Hyper dolichocephalic	60.0 to 64.9	-	-	-	-	-	-
Dolichocephalic	65 to 74.9	10	7.7	02	2.9	12	6
Mesocephalic	75 to 79.9	54	41.5	20	28.6	74	37
Brachycephalic	80 to 84.9	52	40.0	34	48.6	86	43
Hyperbrachycephalic	85 to 89.9	14	10.8	10	14.3	24	12
Ultrabrachycephalic	90.0 to 94.9	-	-	04	5.7	04	02
	CI < 94.9						
Total		130	100	70	100	200	

Table 1: Different types of cephalic phenotypes of Males and Females in eastern part of India

It showed in table-2 that the maximum Cephalic Index (CI) in male was 89.90 units and in female 90.80 units; and minimum Cephalic Index in male was 71.60 units and in females 67.40 units. Mean Cephalic Index in male was 80.20 units and in females 81.72 units. Predominant Cephalic phenotype found in this region was brachycephalic.

Cephalic Index Male Vs Female No. of Ref. Range (95% Region Gender Mean Mean 🎙 SD t-value\* Р subjects Min Max CI) Diff. Eastern Male 130 71.6 89.9 80.20 🞙 3.75 72.70 - 87.70 India 0.14 1.79 0.08 (NS) 70 67.4 90.8 Female 81.72 \$ 4.58 72.56 - 90.88 Total 200 67.4 90.8 80.74 🎙 4.11 72.52 - 88.95

Table 2: Comparison of Cephalic Index in Males and Females

\* Student's t-test

P < 0.05, Significant

P > 0.05 not Significant

### DISCUSSION

Recently morphological methods have been employed for devising proper equipment for industry and defence forces. Combining with Physiologists, Psychologists and Engineers, Anthropologists have helped in designing the spaceship for convenience of astronauts. They have made valuable contribution in the designing of aircrafts, uniforms and other specialized equipments for defence personnel. Anthropometrical surveys provide norms about the physique of national populations. Trends of change are studied by such consecutive surveys for number of years. Estimates for some physiological functions like basal metabolism, vital capacity, nutritional requirements etc. can be estimated by means of anthropometrical data. They help to indicate the need for medical and public health programmes.

In the present study conducted in Eastern region of India mean head breadth in males was 14.06 cms and in females 13.80 cms; mean length in males was 17.51 cms and in females 16.92 cms. Maximum Cephalic Index in male was 89.90 units and in female 90.80 units; minimum Cephalic Index in male 71.60 units and in females 67.40 units. Mean Cephalic Index in male was 80.20 units and in females 81.72 units. Predominant Cephalic phenotype found in this region was brachycephalic which is quite different from the study conducted earlier, which had showed predominance of mesocephalic group.<sup>4</sup>

According to study conducted in 1963 of Kayashtas in Bengal<sup>4</sup> (Eastern region of India) mean head breadth varied among sub groups of Kayastha from 14.12 cms to 14.95 cms, head length varied from 18.32 cms to 18.52 cms, mean Cephalic Index varied between 76 and 80 units, which put them in the mesocephalic group.

Sl. No.	Population	Workers	Sample No.	Mean Cephalic Index
1	K. Vangaja	Basu (1963) <sup>4</sup>	100	79.50
2	Bhils	Bhargav and Kher (1960) <sup>5</sup>	100	76.9
3	Barelas	Bhargav and Kher (1961) <sup>6</sup>	100	79.80
4	Gujarati	Shah GV and Jadhav HR (2004) <sup>7</sup>	302	80.42
5.	Mahers	Karte (1951) <sup>8</sup>	100	73.89
6.	Bombay	Karte (1951) <sup>8</sup>	100	77.9
Present stud	dy			
7.	Eastern	Present study	200	79.72

Cephalic Index in different Indian groups compared with present study

### CONCLUSION

Indians

Mean Cephalic Index of the students of eastern part of Indian origin was studied using spreading caliper and the finding was – 79.72. Eastern regions showed predominance of mesocephlaic phenotype in both the sexes. Mean Cephalic Index among males was 79.14 in females it was 80.74

This shows that there was no significant gender difference in the Cephalic Index in subjects from eastern part of India. Although the components of cephalic index are rarely used alone for the race determination, these measurements are the foundations for several prominent approaches.

The data from the present study can be used in various branches of medicine like forensic medicine, plastic surgery, oral surgery, pediatrics, dentistry for comparison between patient and normal population.

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### Role of Sphenoidal Air Sinus Dimensions in Establishing the Personal Identity

Pawar Sudhir E.\* Sawant V.G.\*\* Shinde S.V.\*\*\* Reddy Bhaskar. B.\*\*\*\*

### ABSTRACT

In the past some attempts have been made to study comparative anatomy of the Para nasal air sinuses. Among them some have made efforts to measure the dimensions of these Para nasal air sinuses. Mostly all of study was done on the dry bones in early phase and then with X-rays. As these dimensions are very important to the ENT surgeons and to the neurosurgeon to understand the normal anatomy of these PNS. So, in present study efforts have made to measure the dimensions of sphenoidal air sinus with the help of CT scan and MRI, Which are the latest modalities, which can give more accurate measurements. Here 50 CT scans of PNS of normal adults (37 males & 13 females) at J.J. Hospital radiology department, Byculla, Mumbai were studied. And MRI of Brain including PNS of 100 normal adults (50 males, 50 females) at Breach Candy Hospital, Mumbai was studied.

**Key words:** Para nasal air sinus (PNS), Antero posterior (A-P), Transverse (Trans.), Vertical (Vert.), CT scans, MRI.

### INTRODUCTION

Most of the anthropologist, anatomist and forensic experts are always interested in knowing different parameters of body. According to most of the scientist have done study on anthropometric measurements of different parts of body. These parameters are very important in view of forensic experts and anatomists. Because now days very frequently events of doing murder

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first occurring and then attempts are made to destroy evidences and identity of that person i.e. by trying to burn or throwing in water afterword etc, or due to decomposition. Such cases when come to police department, then they use to take help from Forensic experts to know information like age, sex, gender etc from whatever the body parts are remaining to establish the identity of person. Similar situation also arises when the remaining parts of body in masses of unclaimed bodies (muddemal) in their juridical area, which may be very badly eaten by animals sometimes, to the government medical colleges (medicoleagal case) to know the information. Apart from this the natural disasters are also happening like an earthquake, flooding, building collapse, in which identification of person is a very difficult task. So in this study stress has given to know the dimensions of sphenoidal air sinus which will be helpful not as primary but as an additional data

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to confirm the borderline cases. In past years study has done on dry bones and roentgens (x-ray), but as now a days as advanced technique like CT scan and MRI are available, so efforts have been made to reach toward more accuracy in case of sphenoidal air sinus dimensions.

### AIMS AND OBJECTIVES

1. To find out average maximum dimensions (A-P, Transverse, Vertical) of sphenoidal air sinus for adult male, for adult female & Combined for both sexes by CT Scan.

2. To find out average maximum dimensions (A-P, Transverse, Vertical) of sphenoidal air sinus for adult male, for adult female & Combined for both sexes by MRI.

### MATERIALS AND METHODS

sinuses were included and studied. All others having abnormal pathology and congenital defect were excluded from study. All these patients were referred to the radiology department of J.J. Hospital, Byculla, Mumbai. (Grant Medical College, Mumbai). All CT Scans were done on SIEMENS, SOMATOM plus-4 machine in both Axial and Coronal planes. Sections having largest dimensions were selected for measurements.

#### **MRI Study**

This study includes MRI Brains of 100 adults (50males, 50females) having normal Para nasal air sinuses, which were referred for neurological complaints at Breach Candy Hospital, Mumbai. All patients underwent MRI on PHILIPS GYROSCANS ACS-NT, 1.5 TESLA machine. After performing MRI, the images having largest dimension were selected for measurements.

### RESULTS

### CT Scan Study

In this CT Scans of PNS of 50 adult patients (37 males, 13 females) having normal Para nasal air

Total 50 subjects were studied for CT scan, among the 37 subjects were adult male and 13 subjects were adult female.

### Table I: Total no of Subject studied

Study	Male	Female	Total no. of subjects
CT SCAN STUDY	37	13	50

The table-1 showed the average maximum dimensions of Sphenoidal air sinus for Male subjects. In which, the average maximum dimensions of the right side of Sphenoidal air sinus are 28.9 mm anteroposteriorly, 16 mm transversely and 25.12 mm vertically. Where as for Left side they are 29.9mm anteroposteriorly, 16.5mm transversely and 25.7mm vertically. The last column indicate the average of both Right and Left side sphenoidal air sinus dimensions and they are as 29.4mm anteroposteriorly,16.3mm transversely and 25.4mm Vertically.

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Sphenoidal air sinus								
	Rt. Side			Lt. side			Average	
A-P	Trans.	Vert.	A-P	Trans.	Vert.	A-P	Trans.	Vert.
28.9	16.0	25.12	29.9	16.5	25.7	29.4	16.3	25.4

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### Table no.-III

For Female: Average diameter in mm.

Sphenoidal air sinus								
	Rt. Side Lt. side				Average			
A-P	Trans.	Vert.	A-P	Trans.	Vert.	A-P	Trans.	Vert.
27.0	14.6	22.5	27.5	15.2	23	27.3	14.9	22.7

The above table shows average maximum dimensions for Female subject. In which for the Right side the average maximum dimensions are 27.0 mm anteroposteriorly, 14.6mm transversely and 25.12mm vertically. Where as for Left side it

is 27.5mm anteroposteriorly, 15.2mm transversely and 23mm vertically. The last column indicate the average of both Right and Left side sphenoidal air sinus dimensions and they are as 27.3mm

### Table no.-IV

Common for both Sexes: Average diameter in mm.

Subject	Sphenoidal air sinus			
	A-P	Trans.	Vert.	
Male:	29.4	16.3	25.4	
Female	27.3	14.9	22.7	
Common for both	28.3	15.6	24.0	

The above table shows average maximum dimensions for adult (common for both male and female sex). The dimensions are as 28.3mm antero posterior, 15.6mm transversely and 24.0mm vertically.

### Table no.-V

FOR MRI STUDY: Total no of Subject studied

Study	Male	Female	Total no.
MRI STUDY	50	50	100

The above table shows total no. of 100 subjects was studied for MRI study. In this 50 subjects were adult male and 50 subjects were adult female.

### Table VI

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For anter	For Male: Average diameter in mm								
22.7m	22.7mm Vertically. Sphenoidal air sinus								
		Rt. Side		Lt. side			Average		
	A-P	Trans.	Vert.	A-P	Trans.	Vert.	A-P	Trans.	Vert.
	27.19	14.63	23.77	27.77	15.14	24.19	27.48	14.88	23.98

The above table shows average maximum dimensions for Male subjects. In which for the Right side the average maximum dimensions are 27.19mm anteroposteriorly, 14.63mm transversely and 23.77mm vertically. Where as for Left side it is 27.77mm anteroposteriorly, 15.14mm transversely and 24.19mm vertically. The last column indicate the average of both Right and Left side sphenoidal air sinus

dimensions and they are as 27.48mm anteroposteriorly,14.88mm transversely and 23.98mm Vertically.

### Table no.-VII

For Female: Average diameter in mm

Sphenoidal air sinus								
	Rt. Side			Lt. side		Average		
A-P	Trans.	Vert.	A-P	Trans.	Vert.	A-P	Trans.	Vert.
26.57	15.00	23.03	27.26	15.38	23.57	26.92	15.19	23.25

The above table shows average maximum dimensions for Female subjects, where firstly we have average maximum dimensions for right side which are as 26.57mm anteroposteriorly, 15mm transversely and 23.03mm vertically. For left side they are 27.26mm anteroposteriorly, 15.38mm transversely, and 23.57mm vertically. Lastly we have Average of both right and left side and they are as 26.92mm anteroposteriorly, 15.19mm transversely and 23.25mm vertically.

### Table VIII

Common for both Sexes: Average diameter in mm

Subject	Sphenoidal air sinus			
	A-P	Trans.	Vert.	
Male:	27.48	14.88	23.98	
Female	26.92	15.19	23.25	
Common for both	27.20	15.03	23.61	

The above table shows average maximum dimensions for adult (common for both male and female sex). The dimensions are as 27.20mm antero posterior, 15.03mm transversely and 23.61mm vertically.

### DISCUSSION

Considerable variations in the sinus size occur from person to person. In the past many anatomists like Van Alyea<sup>8</sup>, Schaeffer J.P.<sup>7</sup> has made attempts to find out the maximum dimensions of the normal Para-nasal air sinus. The present study also includes the measurements of maximum dimensions (Antero posterior, transverse, Vertical) of normal adult Sphenoidal air sinus from CT and MRI. As these are the latest advanced modalities made available which were not in the past. So with these modalities we can go towards more accuracy. In the present study, CT scans of 50 adults (37 males & 13 females) having normal Para nasal air sinuses have been selected for measurements of maximum dimensions of Sphenoidal air sinus. Also the MRI of Brain of 100 adults (50males, 50females) having normal Para nasal air sinuses have been selected for measurements of maximum dimensions of Sphenoidal air sinus. Also this study provides separate dimensions for Male and female sex. The results of present study were compared with the previous study as follows.

The sphenoidal sinuses lie side by side within the body of sphenoid bone separated by a bony septum. They vary in size and shape and rarely symmetrical. When exceptionally large, they may extend into the pterygoid plates or greater wings and may also spread into dorsum sellae and clinoid process. H. William<sup>4</sup> in his book 'Head and Neck' mentions that the sphenoid sinus is the most variable in the form of any bilateral cavity or organ in human body and it is more variable in Antero posterior dimensions. Further he mentions the average dimensions for the adult sphenoidal sinus giving range as 4 to 44mm Antero posteriorly, 2.5 to 34mm transversely, and 5 to 33 mm vertically. Also he gives the reference of average dimensions of sphenoidal sinus by Dixon as 19 to 22mm Antero posteriorly,15 to 17mm transversely, and 18 to 20mm vertically. While Daniel O.Graney<sup>1</sup> mentions the average dimensions for adult sinus as 23mm Antero posteriorly, 17mm transversely and 20mm vertically. Gerald D.Dodd<sup>2</sup> gives the combined measurements for both sinuses in the adult as 22mm Anteroposterior,20mm transverse and 22mm vertically.Gray's<sup>3</sup> textbook of anatomy mentions average dimensions for adult sphenoidal as 21mm Antero posteriorly,18mm transversely and 20mm vertically. Schaeffer JP7 in 'Morris Human Anatomy' book (11th edition) mentions the average dimensions as 12mm Antero posteriorly, 18mm transversely and 20mm vertically. While Lee B. Lusted and Theodore E.Ketas<sup>5</sup> gives the separate dimensions for right and left sphenoidal sinus at 14 years of age as for right sphenoidal sinus 12mm Antero posteriorly,9mm transversely and 14mm vertically. For the left sphenoidal sinus 7mm Antero posteriorly, 14mm transversely and 15mm vertically.

The present study data from computerized tomographic scans provides the average maximum dimensions for adult sphenoidal sinus 28.3mm Antero posteriorly, 15.6mm as transversely, 24.0mm vertically. While the data from Magnetic resonance imaging provides the average dimensions for adult sphenoidal sinus as 27.2mm Antero posteriorly, 15.0mm transversely, 23.6mm vertically. If we compared these readings with past studies, they are within the range of past studies. The Antero posterior and vertical dimensions from the present data are recorded little more as compared to the past. This may be as due to more accuracy of these new and latest modalities like CT scans and MRI. Those were not available in the previous days.

Also if dimensions compared among CT and MRI, then dimensions from MRI are less by few mm and this may be as clarity of mucosa is more on MRI and clarity of bone is more on CT scan.

The present study data will be definitely useful as an additional data to anatomist and forensic experts in different cases. No dought lots of studies are present with different findings and indices to identify age, sex from skull, pelvis and long bones of unknown body. If unfortunately only skull is remaining material in case of incomplete burn, drawening or building collapse and face is not recognizable, in such cases if dimensions of sphenoidal air sinus are made available then this data will be useful as secondary data to establish the identity of that person (either below18 or above 18years and male or female) after confirming with first primary findings and different indices of skull to identify age and sex of unknown case.

Also this study will be useful to make the list of anthropometric data complete.

Also this data will be useful to learn normal anatomical morphology of one of paranasal air sinus i.e. sphenoidal air sinus

### CONCLUSIONS

### CT scan study

1. Data from present study provides the average dimensions for adult male Sphenoid Sphenoidal air sinus as; A-P-29.4 mm, Trans-16.3 mm, Vert.-25.4 mm.

2. Data from present study provides the average dimensions for adult Female Sphenoidal air sinus as; A-P- 27.3 mm, Trans- 14.9 .mm, Vert.-22.7mm.

3. Data from present study provides the average dimensions Common for both sex Sphenoidal air sinus as; A-P- 28.3 mm, Trans-15.6 mm, Vert.- 24 mm.

### MRI study

1. Data from present study provides the average dimensions for adult male sphenoidal air sinus as; A-P-27.4 mm, Trans- 14.8 mm, Vert. - 23.98 mm.

2. Data from present study provides the average dimensions for adult Female Sphenoidal

air sinus as; A-P- 26.92 mm, Trans-15.1.mm, Vert.-23.25mm.

3. Data from present study provides the average dimensions Common for both sex Sphenoidal air sinus as; A-P- 27.2 mm, Trans-15.03 mm, Vert.- 23.6 mm

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### A Study of Burn Deaths in North Karnataka

Tapse Sunil P.\* Shetty Vinay B.\*\* Jinturkar Anil D.\*\*\*

### ABSTRACT

Background: This is an epidemiological profile of the burn fatalities brought to the morgue of Bidar Institute of Medical Sciences & Teaching Hospital Bidar. The study explores the incidence, age-gender distribution, time of occurrence, place of occurrence, socio-economic status, survival period, place of death, cause of death, body surface area involved, manner of death and monthly distribution. From the observations and analysis, certain etiologies are elicited and their preventive measures are suggested.

Key Words: Burn, death, cause of death.

#### **INTRODUCTION**

Homicidal burning of married women in India is a major concern for the Government, lawenforcing authorities, the judiciary, the police and medico legal experts all over the country who are associated with dowry disputes. Dowry death, a heinous crime is gradually engulfing and polluting the entire society. To know the trend of the changing profile this study has been taken up.

### MATERIAL AND METHOD

A study of the burn cases that were brought to the morgue of Bidar Institute of Medical Sciences

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& Teaching Hospital Bidar to conduct the autopsy. It is a prospective study conducted for a period of one year from January 2008 to December 2008. The data and information gathered for 65 cases were analyzed. A predesigned pro-forma used to collect the information on demographic, like age and sex of the deceased, the venue and time of sustaining burn injuries, socio-economic status of the victims, body surface area involved, survival period and cause of death, circumstances of burns, etc. from the autopsy records and inquest report. The findings are tabulated in various tables to analyze the whole picture.

### **OBSERVATIONS**

During the period of study (January 2008 to December 2008) a total of 480 medico legal autopsies are conducted by the Dept. of Forensic Medicine, Bidar Institute of Medical Sciences & Teaching Hospital Bidar, out of which 65 deaths are due to burns. There is no regular pattern in the incidence of burns over the study period. Regarding the gender distribution males are

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preponderance (Male-50.76% and female-49.23%) (Table-1). The age group most involved is 21-30 yrs with an incidence of 38.46%, which is more in females. There is no case reported above 60 yrs. (Table-1). Among the 53.84% of cases the burn injuries sustained during daytime (Table-2). Regarding the venue the maximum 24.61% incidence occurred at husband's house (Table-3). Most of the victims about 53.84% belonged to lower socio-economic strata (Table-4). Maximum percentage of victims survived for less than 1 hr (49%) and 21.53% are survived for more than one week (Table-5). The 50.76% victims died in the hospital whereas 49.23% at the site of occurrence (Table-6). The cause of death in the maximum cases is shock due to burn (67.69% cases) and 14% died due to toxemia (Table-7). Taking the body surface area involved into consideration it was observed that in about 73.84% cases the more than 80% body surface area is involved (Table-8). However, in 4 cases the death was due to smoke suffocation.

Most of the cases are accidental in nature (35.38%), followed by homicidal (29.23%) and suicidal (24.61%). There is a case of self immolation as a protest against the Armed Forces Special Powers Act (Table-9). Highest incidence (32.30%) is seen in the month of January (Table-10).

Age in Years	Male (%)	Female (%)	Total (%)
<10	2 (6.06)	3 (9.37)	5 (7.69)
11-20	5 (15.15)	9 (28.12)	14 (21.53)
21-30	9 (27.27)	16 (50)	25 (38.46)
31-40	12 (36.36)	3 (9.37)	15 (23.07)
41-50	2 (6.06)	1 (3.12)	3 (4.61)
51-60	3 (9.09)	0(0)	3 (4.61)
>60	0(0)	0(0)	0(0)
Total	33 (50.76)	32(49.23)	65

Table 1: Age-gender distribution

Table 2: Time of occurrence of Incidence (N=65)

Day		Night		
No	%	No	%	
35	53.84	30	46.15	

Place	Male (%)	Female (%)	Total (%)
Quarter	4 (12.12)	4 (12.5)	8 (12.30)
Own/rented hose	5 (15.15)	8 (25)	13 (20)
Husband's house	0 (0)	17 (53.12)	17 (26.15)
Shop	2 (6.06)	1 (3.12)	3 (4.61)
Work place(hotel)	2 (6.06)	0 (0)	2 (3.07)
Paddy field	1 (3.03)	0 (0)	1 (1.53)
Roadside	13 (39.39)	0 (0)	13 (20)
Master's house	0 (0)	1 (3.12)	1 (1.53)
Bazaar	3 (9.09)	0 (0)	3 (4.61)
Misc.(Riot)	2 (6.06)	2 (6.25)	4 (6.15)
Total	33 (50.6)	32 (49.23)	65 (100)

Table 3: Place of occurrence of incidence

Table 4: Socio-economic status

Socio-economic status	Male (%)	Female (%)	Total (%)
High	01 (3.03)	03 (9.37)	04 (6.15)
Middle	19 (57.57)	07 (21.87)	26 (40)
Low	13 (39.39)	22 (68.75)	35 (53.84)
Total	33 (50.76)	32 (49.23)	65 (100)

	_		-		-	
Table	5:	Period	of	Survival	after	incidence

Period	No. of cases	%
<1 hr	32	49.23
1-24hrs	11	16.92
24-48 hrs	02	0.30
2-3 days	01	1.53
3-7 days	05	7.69
>l week	14	21.53
Total	65	100

Place	No. of cases	%
Hospital	33	50.76
Burn site	32	49.23
Total	65	100

Table 6: Place of death

Cause of death	No.	⁰∕₀
Burn shock	44	67.69
Toxaemia	09	13.84
Septicaemic shock	04	6.15
Acute tubular necrosis	01	1.53
Complications	02	3.07
Smoke suffocation	04	6.15
Total	65	100

### Table 8: Body surface area involved

Area	No.	0/0
0%(only smoke suffocation)	04	6.15
<30%	00	00
31-40%	00	00
41-50%	00	00
51-60%	05	7.69
61-70%	02	3.07
71-80%	06	9.23
>80%	48	73.84
Total	65	100

### Table 9: Nature of death

Nature	No.	%
Suicidal	16	24.61
Homicidal	19	29.23
Accidental	23	35.38
Riot	05	7.69
Self-immolation(AFSPA)	01	1.53
Unknown	01	1.53
Total	65	100

Month	No. of cases	%
Jan	21	32.30
Feb	3	4.61
Mar	4	6.15
April	1	1.53
May	8	12.30
June	3	4.61
July	6	9.23
Aug	4	6.15
Sept	3	4.61
Oct	4	6.15
Nov	5	7.69
Dec	7	10.76
Total	65	100

### Table 10: Monthly distribution

#### DISCUSSION

Dowry death is not traditionally prevalent in North Karnataka. However, sporadic instances of burn deaths of newlywed women suggest the possibility of a sinister trend slowly creeping into an erstwhile placid society. Slight male preponderance was observed. This may be because males are generally more active and involved in activities of all kinds. But the difference is not much. Females are not far behind and mainly comprised.

The age group most involved was 21-30 yrs with an incidence of 38.46%, which was more in females. Taking the place of occurrence into consideration 24.61% occurred in the husband's house. These observations are in conformity with other studies from the various regions of India<sup>2-10</sup> and in contrast to the studies from other developing and the developed countries<sup>11-16</sup>. More than half of victims (53.84%) were sustained burn injuries during daytime. This may be due to the fact that people are usually occupied in their work during daytime and therefore the burns are sustained in the course of their activities.

The majority of victims those were sustained more than 80% burns were survived for less than one hour. Most cases were accidental followed by homicidal and suicidal burns.

Among those who die in suspicious circumstances, family quarrels and marital disharmony are the two important predisposing factors. Illiteracy, arranged marriage, joint family structure, unemployment, economic dependence of the husband on the parents, complete dependence of the women on their husband and in-laws and lack of social security were other contributory factors affecting the incidence in some way <sup>17-20</sup>. This is supported by the observation that 53.84% of the victims in our study belonged to low socio-economic stratum and also that 24.61% occurred in the husband's house which was the maximum among the studied categories. Most of the cases occurred in January. This may be due to use of fire for warming during winter.

### CONCLUSION

Burn injuries have been a major cause of concern since prehistoric days to the present era of modern medicine. However, the general belief that burns usually occur at the two extremes of age, indicating the accidental nature of infliction does not hold true in the present Indian setup where the majority of reported cases belongs to second or third decade of life. However, the female preponderance in the ID-20, 21-30 yrs age groups. It could be a strong reason to start thinking of the sneaking intrusion of dowry harassment in a traditionally non-dowry oriented society.

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### **Case Report**

### Death due to Uterine Rupture: An evidence of Negligence

Chormunge Vijay\* Patil Mrunal\*\* Avhale Rupesh\*\*\*

### ABSTRACT

A young female with history of previous lower segment cesarean section was admitted in a hospital at Nashik with full term fetus for induction of delivery. The patient was having Labor pains but the doctor on duty admitted the patient & assured her relatives that she is under false labor pains. After 7 hrs of admission in hospital patient died due to shock. The relatives of patient banged the doctor on duty & filled a complaint of medical negligence against the doctor. On post mortem examination, body was well built & pale. On opening the abdominal wall peritoneal cavity contained 1500 cc of dark red blood clots. The uterus was ruptured on anterior aspect with placental parts extruding but the fetus in situ. The Police have registered a case of gross negligence against the doctor.

Key words: Negligence, Uterus, Caesarean section, rupture, Labor.

### INTRODUCTION

Uterine rupture refers to separation of the old uterine incision throughout the most its length, with rupture of fetal membranes so that uterine cavity and the peritoneal Cavity communicate. In these cases all or parts of the fetus usually is extruded in the peritoneal cavity<sup>1</sup>. Uterine rupture is a major obstetric hazard in India & it still

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accounts for 5-10% of all maternal deaths<sup>2</sup>. The most common cause of uterine rupture in the developed world is previous cesarean section. Other less common causes are myomectomy, breech version, operative delivery, trauma, high parity, use of oxytocin & obstructed labor<sup>1</sup>. Uterine rupture is potentially preventable complication if a case of previous LSCS is attended in time for induction of Labor.

### CASE HISTORY

A 30 yrs old female, resident of Cidco, Nashik was admitted to Civil Hospital Nashik on 7/9/08 at 9.10 pm with full term fetus for induction of delivery. Patient was having Labor pains & gave history of previous Cesarean section. The doctor on duty attended the patient and assured the

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relatives that they are false labor pains though the patient was shouting with pains & was restless. The patient was admitted in maternity ward and oxytocin drip was started for contraction of uterus. After few hours patient's condition started deteriorating & doctor on duty gave a call to obstetrician. Till the obstetrician arrived in hospital patient was in shock. On 8/9/ 2008 at 4.00 a.m. after near about 7 hrs the patient was declared dead by the duty Doctor. The relatives of patient were violent & banged the doctors on duty asking why cesarean section was not done when it was needed. The relatives demanded a postmortem to be conducted to do the justice with the patient and its relative and the civil surgeon allowed to file a case and to conduct the post mortem with the help of a forensic expert & a team of doctors. Civil surgeon frame a committee of experts including a forensic expert, one C.M.O, one Surgeon & one Gynecologist to conduct the postmortem and give expert opinion to the case. We proceeded for postmortem examination on the request of Sarkarwada Police Station an 8/9/2008 at 11.00 p.m.

### EXTERNAL EXAMINATION

A young female body without any external injury on body except injection marks on the forearm was seen. The body was well built & pale with a scar mark of previous LSCS on the abdomen on infra umbilical region was seen. Rigor mortis was present & postmortem lividity was seen on back portions of the body. The eyes were closed, tongue inside the closed mouth & blood tinged fluid coming out. No any injuries were seen on external genitalia.

### INTERNAL EXAMINATION

The skull vault was intact. Brain with meninges was pale. On opening the abdomen, the peritoneal cavity contained about 1.5 Litre of red blood clots as like a mass. The clots when removed from abdomen it was traced to uterus. The uterus was enlarged with placental parts extruding out. On dissection of uterine cavity a female fetus of 47 cms & weight 3 kg was seen in situ with placenta. All other internal organs were pale. Opinion as to cause of death was given as "Shock due to ruptured Uterus".

### DISCUSSION

Uterine rupture in pregnancy is rare & often a catastrophic complication with a high incidence of fetal & maternal mortality<sup>3</sup>. Rachagan & colleagues<sup>4</sup> reported an incidence of uterine rupture of about 1 in 3000 deliveries over a period 21 years. Currently the most common cause of uterine rupture is separation of a previous cesarean section scar & this probably is increasing with developing trend of allowing a trial of labor following, prior transverse section. The studies showed that incidence of uterine rupture after previous cesarean section was 0.2 to 0.8 %. Some of the most recent studies state that induction of oxytocin, prostaglandins have added the tragedies of Uterine rupture death. In the present case the trial of labor was given in-patient of previous LSCS. The oxytocin was started, though the patient was in high-risk group pregnancy. Doctor could not assess the condition of patient. The patient was in full term with typical labor pains but duty doctors could not able to differentiate true labor pains with false labor pain.

The doctor on duty should have given a call to on obstetrician. In case if a call was given then why obstetrician didn't reach in time. It was the duty of the consultant to reach within 30 min to one hour to attend the serious patient. Here in this case, the patient was unattended for more than 6 hours which may result in developing the condition of shock. The treating doctor & nurse could not able to diagnose the signs of shock & uterine rupture. While for diagnosis of shock does not need any specialization and can be easily assessed by a general MBBS physician. The signs of uterine rupture need some keen observation such as follow-up -sharp shooting pain in the abdomen, cessation of uterine contraction, palpations of fetal parts & stoppage of fetal heart

sounds. If in this case timely treatment of shock i.e. giving IV fluids or blood transfusion and operative management i.e. Laparatomy & or hysterectomy would have been done, the patient's life could have been saved. The doctor has failed to diagnose uterine rupture and take proper care in management of the case. The relatives were left with mental agony due to this untimely shock given by the doctor. The Police have registered the case of negligence under section 304 (A) against the doctors for there gross negligence in handling the patient.

The Uterine rupture is a potentially preventable complication & great caution should be taken when managing a trial of labor with a previous Cesarean section. The doctor should identify the cases of high-risk pregnancy of previous LSCS & take proper care in management of these cases to avoid the charges of negligence.

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Benjamin Lewin. Genes VI. New York; Oxford University Press, 1997

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This century will be the century of the brain. Intelligence will define success of individuals; it remains the main ingredient of success. Developed and used properly, intelligence of an individual takes him to greater heights. Ask yourself, is your child intelligent! If yes, is he or she utilizing the capacity as well as he can? I believe majority of people, up to 80% may not be using their brain to best potential. Once a substantial part of life has passed, effective use of this human faculty cannot take one very far. So, parents need to know how does their child grow and how he becomes intelligent in due course of time. As the pressure for intelligence increases, the child is asked to perform in different aspects of life equally well. At times, it may be counter-productive. Facts about various facets of intelligence are given here. Other topics like emotional intelligence, delayed development, retardation, vaccines, advice to parents and attitude have also been discussed in a nutshell. The aim of this book is to help the child reach the best intellectual capacity. I think if the book turns even one individual into a user of his best intelligence potential, it is a success.

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This book has been addressed to young doctors who take care of children, such as postgraduate students, junior doctors working in various capacities in Pediatrics and private practitioners. Standard Pediatric practices as well as diseases have been described in a nutshell. List of causes, differential diagnosis and tips for examination have been given to help examination-going students revise it quickly. Parent guidance techniques, vaccination and food have been included for private practitioners and family physicians that see a large child population in our country. Parents can have some understanding of how the doctors will try to manage a particular condition in a child systematically. A list of commonly used pediatric drugs and dosage is also given. Some views on controversies in Pediatrics have also been included. Few important techniques have been described which include procedures like endotracheal intubations, collecting blood samples and ventilation. I hope this book helps young doctors serve children better.

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