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Dilemma in Estimation of Age in a Dwarf

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ABSTRACT

Dwarfism is a highly visible condition and often carries negative connotations in society. Because of their unusual height, people with dwarfism are often used as spectacles in entertainment and portrayed with stereotypes. This paper provides an interesting problem in relation to estimation of age in a case of dwarfism.

Keywords: Dwarfism, Age estimation, Clinical Forensic Medicine

Introduction

Stature is one of the points of non specific type of identification but sometimes person with less height called as dwarf, are identified by their height only. Stature is also a useful tool for a pediatrician for knowing the growth of a child during early period of life. Dwarfism is short stature resulting from an abnormal medical condition when the height of an adult is less than 4 feet 10 inches (147 cm).[1]

The psychosocial disadvantages may be more distressing than the physical symptoms, especially in childhood and adolescence, but people with dwarfism vary greatly in the degree to which social participation and emotional health are affected. Social prejudice against extreme shortness may reduce social and marital opportunities.[2,3] Numerous studies have demonstrated reduced

employment opportunities. Severe shortness is associated with lower income.[3] Self-esteem may suffer and family relationships may be affected. Extreme shortness (in the low 2–3 foot [60–90 cm] range) can interfere with ordinary activities of daily living, like driving or using countertops built for taller people. Other symptoms of dwarfism such as bowed knees and unusually short fingers can lead to back problems, difficulty in walking, and handling objects. Children with dwarfism are particularly vulnerable to teasing and ridicule from classmates. Because dwarfism is relatively uncommon, children may feel isolated from their peers.[4] The Bhagavat Purana Hindu text devotes nine chapters to the adventures of Vamana, a dwarf avatar of Vishnu.


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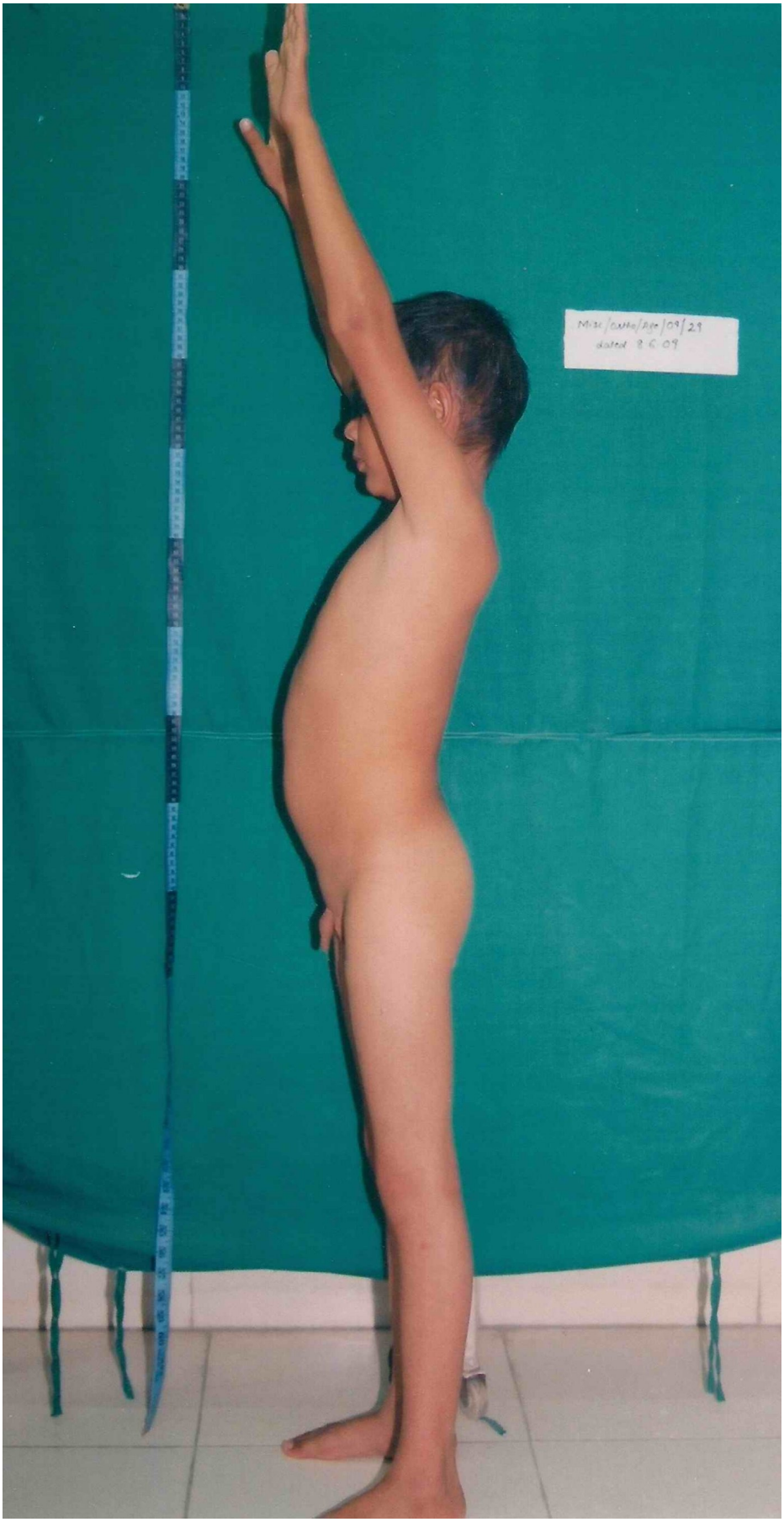




Figure 1, 2a, 2b and 2c. The boy in question, and his physical parameters

Keeping in view the pitiable economic condition of dwarfs in Haryana it is proposed to give financial help to the dwarf in the State that are socially and economically deprived section of society. Haryana Govt. has announced (Rs 300)[5] as monthly allowance for dwarfs who are domicile of Haryana State and has been residing in Haryana State for the last one year at the time of submission of application & should not be less than 18 years of age and the applicant must give a certificate from the Civil Surgeon in support of being dwarf. The State of Haryana has accepted the definition of dwarfs as and when the height of the male person is 3 ft 8inches or less and a female is 3 feet 3inches or less and equivalent to 70% handicapped would be entitled to monthly allowance. When the dwarf attains the age of 60 years his/her case will be transferred to old age allowance scheme.[6] The percentage of disability is five per cent for each inch shorter than the specified height for dwarf person (4ft 10 inches). The corresponding dwarfing height for adult female is 4 ft 5inches. [7] However as per ICMR norms for Indian population every 1 inch vertical height reduction should be valued as 4% permanent physical impairment.[8] Thus the Civil Surgeon has to give a certificate for assessments of a person's age as well as status of dwarfism to the applicants who are putting their claim under this scheme.

Case report

On wide publicity by the Haryana State regarding this plan of providing allowance to the dwarf persons of not less than 18 years of age in the news articles, an apparently innocent looking, short statured boy (Figure 1) accompanied by his mother of normal height came to the department claiming in a sweet voice that his age was 18 years and that he wanted his age verification so that he could claim the allowance sanctioned for dwarf of adult age. In fact he was referred to the orthopedics department for handicapped certificate. But he was subsequently referred to this department for his age verification also. A board was constituted for ascertaining his age. A thorough general physical, dental and radiological examination was carried out including checking of his records on the basis of which he was claiming to be of 18 years of age.

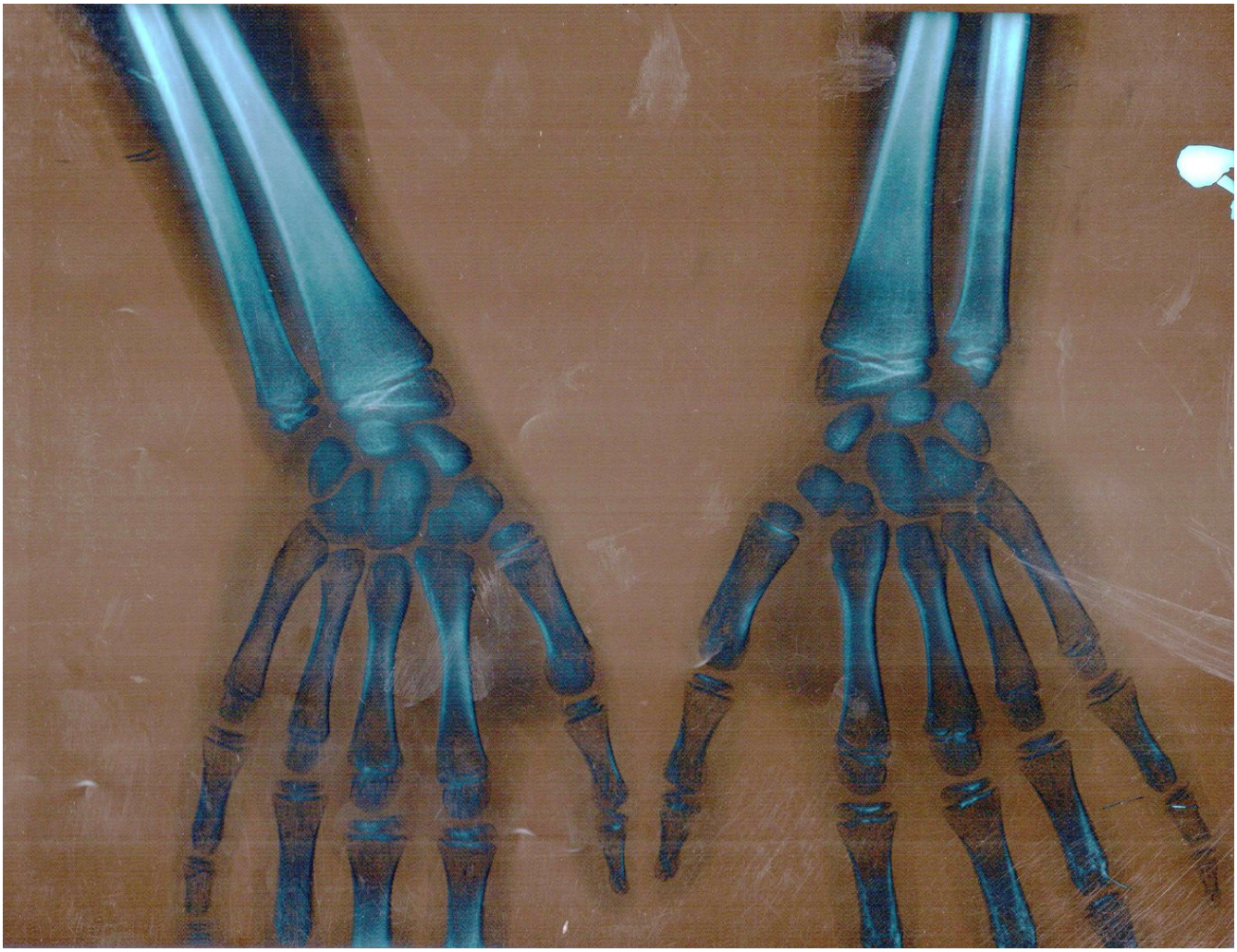
Observations

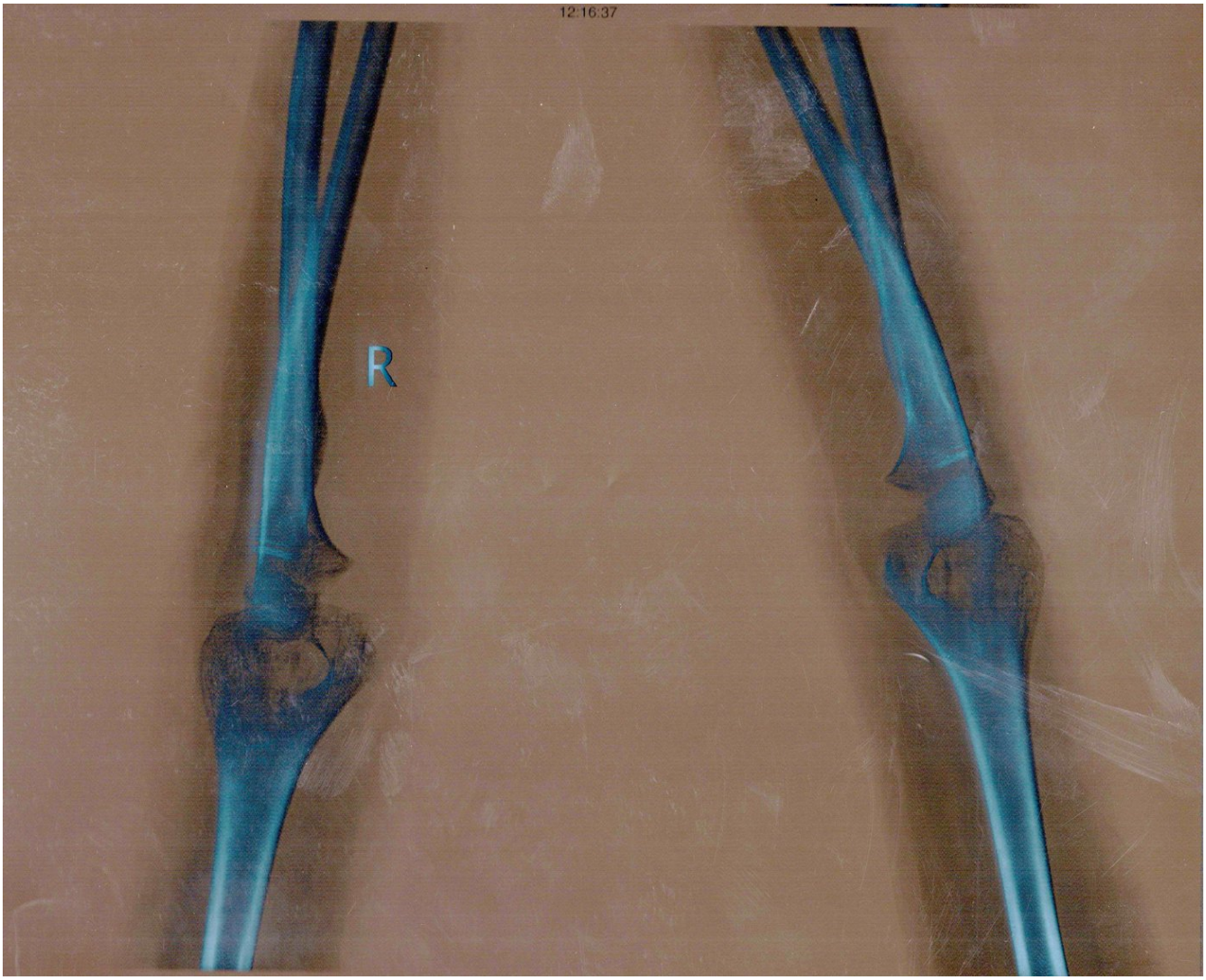
On General Physical Examination

The height and the weight of the child was 124 cm i.e. 4 feet 2 inches and 24 kgs respectively. The boy was having child like voice or in other words feminine voice. The hairs do not begin to appear in the pubic, axillary and facial region including chin and upper lip. The penis and scrotum were appearing childish. Whereas the fingers were normal looking (Fig. 2a, 2b and 2c).

On Radiological Examination

The carpal bones were present except pisiform. Base of the 1st metacarpal not fused. Head of other metacarpals not fused. All the bases of phalanges not fused (Fig. 3). Epiphysis of the lower ends as well as upper ends of radius and ulna were not fused. Conjoint epiphysis of lower end of humerus was fused with the shaft but medial epicondyle appeared but not fused (Fig. 3, 4). Epiphysis of lower end of femur and upper ends of tibia and fibula were not united (Fig. 5). Epiphysis for iliac crest in the pelvis has not appeared. Tri-radiate cartilage not calcified. Epiphysis for lesser trochanter of femur has not appeared where as greater trochanter of femur and head of femur appeared but not fused (Fig. 6). The epiphysis for inner end of clavicle has not appeared (Fig. 7).

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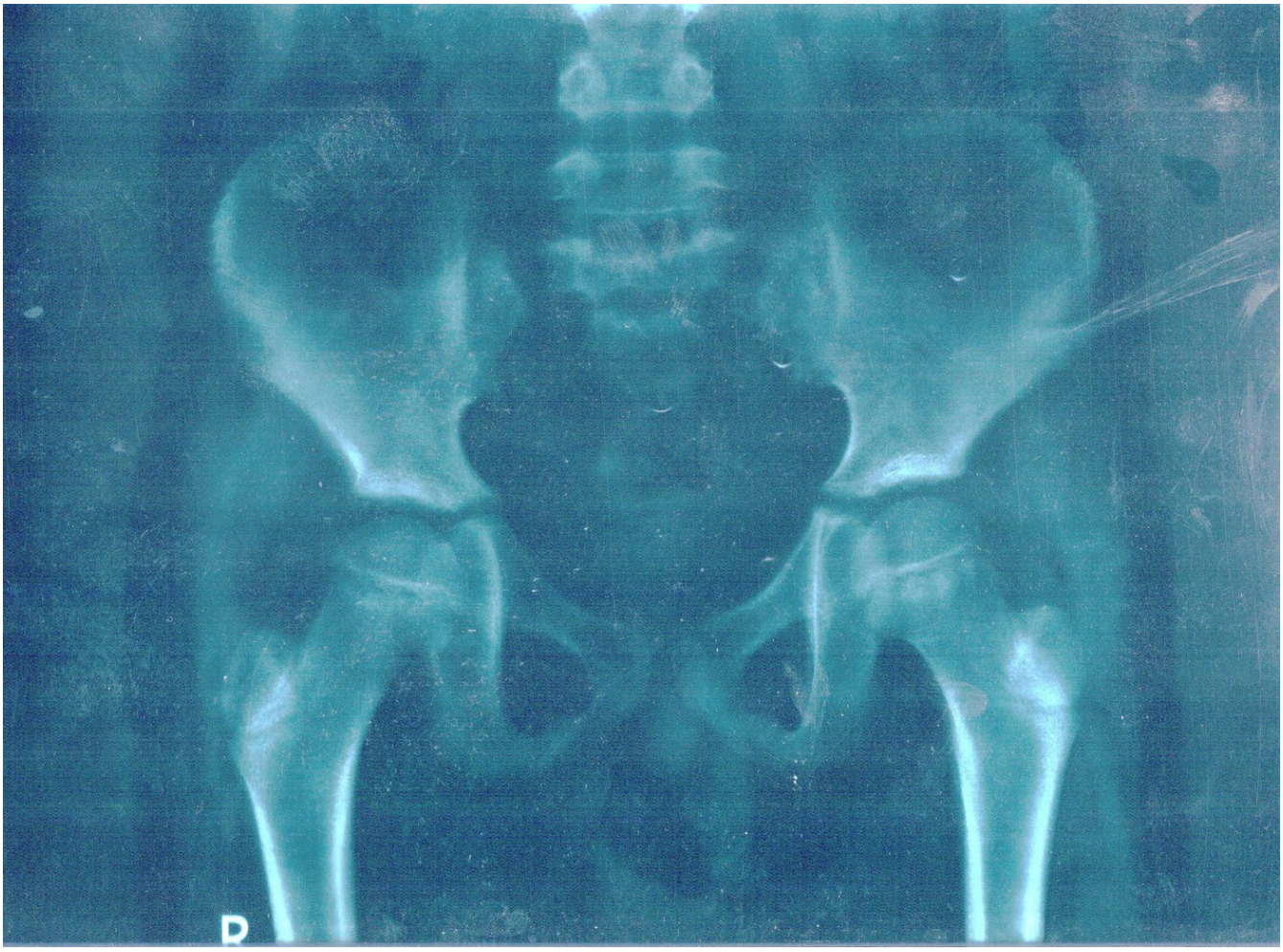
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Figure 3,4,5,6. Findings on radiological examination

On Dental Examination

On dental examination it was found that there were 7 permanent teeth present in each quadrant on the right side and 6 permanent teeth present in each quadrant on the left side. Digital OPG of maxilla/ mandible showed that the root of maxillary canine was completely calcified. 2nd permanent maxillary molar on right side was fully erupted and having complete root calcification. Crown formation of maxillary third molars was completed but had not erupted however; appreciable space was formed for it (Fig. 8). Attrition was appreciated in all the available teeth.

From the general physical and radiological findings, under normal circumstances the child could not at all be of 18 years as alleged by him. However the dental age of the child was approaching towards 18 years. Considering these and his operation for craniopharyngioma (i.e. on 16.04.2001), which is clinically known to cause hypopituitarism that might have affected his growth, therefore, board was of the opinion that the age of the applicant could be corresponding to his date of birth as per his certificate submitted by him.

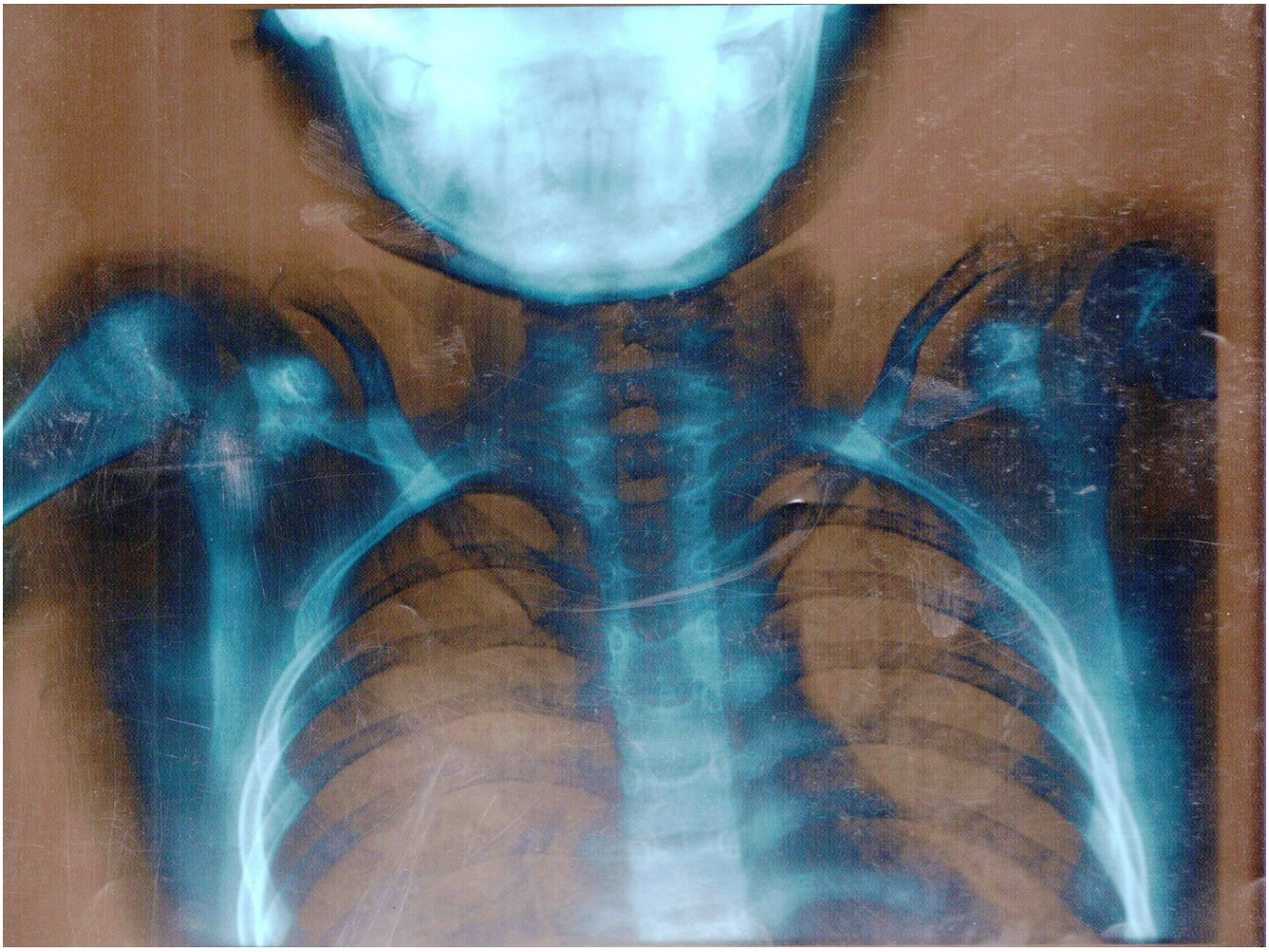
Past records as proof of age

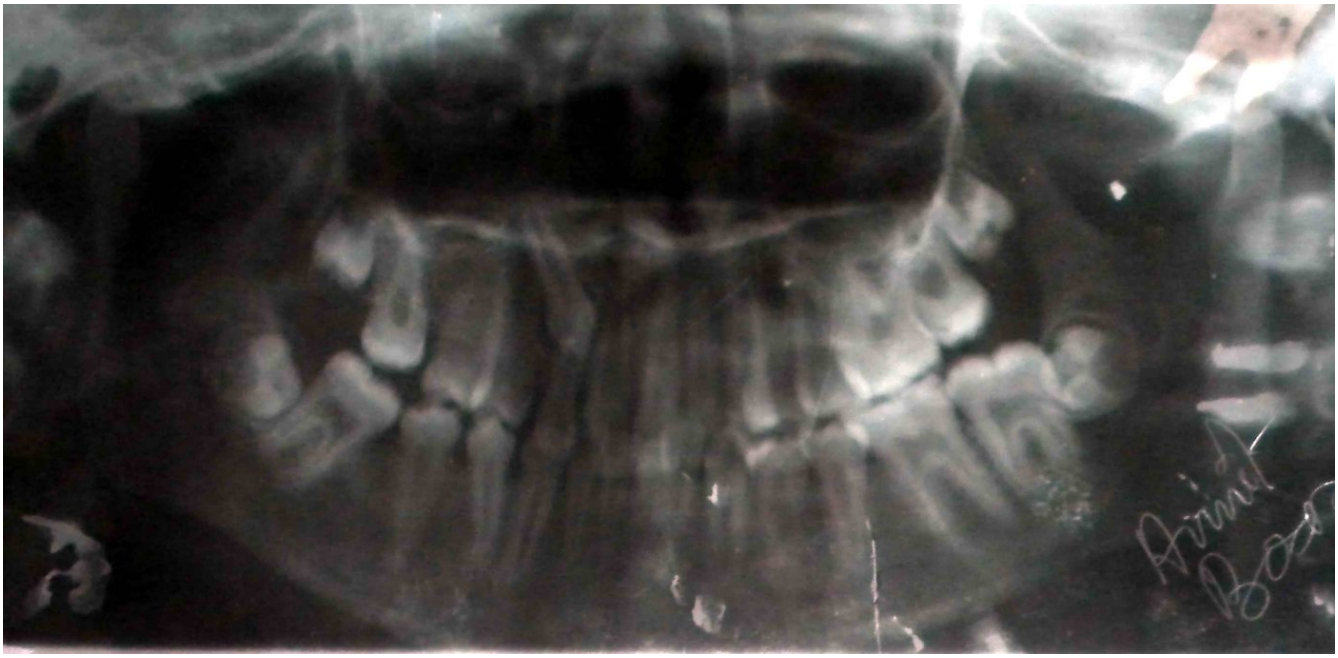
His earlier record of admission in this institute showed that the child was suffering from craniopharyngioma a benign tumor of pituitary gland for which he was operated upon in the department of Neurosurgery way back in 2001 when he was of 10 years old (Fig. 9). Earlier also he

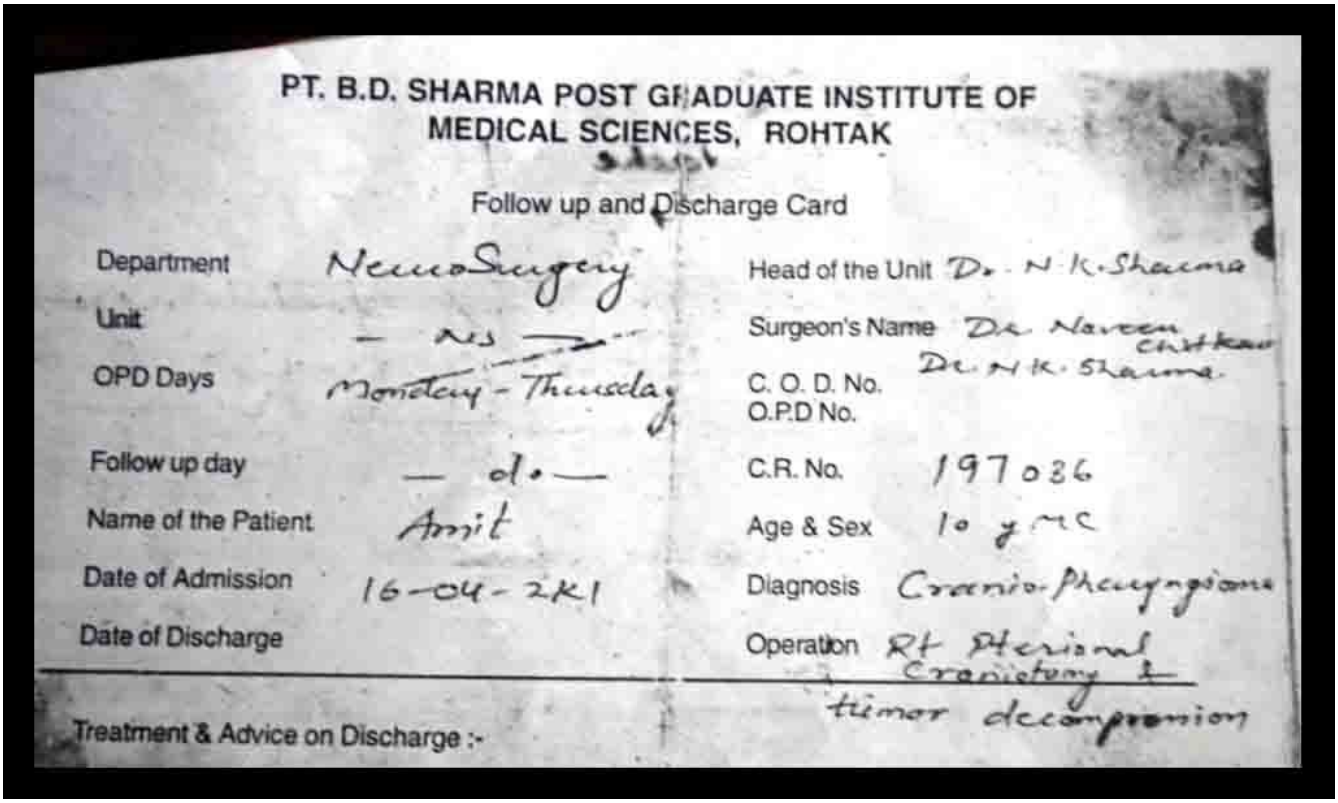
was examined by another board for a handicapped certificate in this institute in the year 2007 for as a scholarship to the physically handicapped student and he was graded as 45% disability for scholarship purpose only. At that time his height was recorded as 4 feet (48 inches). His growth plates at knee and hip were intact and the wrist and hand were showing open growth plates. It was also reported that he may grow further and gain height. So, he should be reviewed for disability after another two years. He passed his secondary examination in the year 2007 and in this certificate his date of birth was shown as 23.05.91 (Fig. 10) which he has brought as a proof of his age also. Now he is a student of BA first year.

Discussion

Usually these types of cases do not referred to the department of forensic medicine but are being dealt by the department of orthopedics for handicap assessments. As per the condition of the state the eligible dwarf person is the one who is not less than 18 years of age. Therefore this case was referred to our department for age estimation. Dwarfism is a medical disorder with the sole requirement being an adult height under 4 feet 10 inches (147 cm) and it is almost always classified as to the underlying condition that is the cause for the short stature. Dwarfism is not necessarily caused by disease or a genetic disorder; it can simply be a naturally occurring consequence of a person's genetics. If dwarfism is caused by a medical disorder, the person is referred to by the underlying diagnosed disorder. Disorders causing dwarfism are often classified by proportionality. Disproportionate dwarfism describes disorders that cause abnormal proportions of the body parts, while proportionate dwarfism results in a generally uniform stunting of the body.







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Follow up and Discharge Card

Department	NeuroSurgery	Head of the Unit	Dr. N.K. Sharma
Unit	— NS —	Surgeon's Name	Dr. Naveen Chitkara Dr. N.K. Sharma
OPD Days	Monday - Thursday	C. O. D. No. O.P.D No.	
Follow up day	— do —	C.R. No.	197036
Name of the Patient	Amit	Age & Sex	10 y MC
Date of Admission	16-04-2K1	Diagnosis	Cranio-Pharyngioma
Date of Discharge		Operation	Rt Pterional Craniotomy & tumor decompression

Treatment & Advice on Discharge :-



क्रमांक Serial No. AI- 175650

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Board of School Education Haryana

माध्यमिक परीक्षा SECONDARY EXAMINATION

अंकतालिका सहित योग्यता प्रमाण–पत्र Certificate of Qualification with Mark Sheet

प्रमाणित किया जाता है कि This is to certify that: AMIT KUMAR

आत्मज / आत्मजा Son/Daughter of श्री/Sh. JAGBIR और and श्रीमती/Smt. KAMLESH

जन्म-दिनांक Date of Birth 23-05-91

TWENTY THIRD MAY NINETEEN HUNDRED NINETY ONE

में आयोजित माध्यमिक परीक्षा has appeared in the Secondary Examination held in FEBRUARY-2007

SARASWATI SR SEC SCHOOL, BEHLBA (ROHTAK)

प्रविष्ट होकर निम्नांकित विषयों में दर्शाए गए श्रेणी सहित (व श्रेणी अंक औसत सहित) योग्यता प्राप्त की है and has been declared qualified w

ubject-wise grades (& with Grade Point Average) mentioned below

प्रथम सैमेस्टर Ist Semester		प्राप्तांक Marks Obtained			
क्रमांक		लिखित(बाह्य)	सतत् पूर्व	प्रायोगिक	योग

Figures 7,8 Findings on radiological and dental examination. Figures 9, 10. Child's age records

This was a case of craniopharyngioma, a common tumor of childhood (7-10% of all childhood tumors)[9] for which surgery is the primary treatment modality.[10] After surgery there might have pan-hypopituitarism which resulted into growth failure of this child. Growth hormone deficiency (GHD) is a medical condition in which the body produces insufficient growth hormone. Growth hormone, also called somatotropin, is a polypeptide hormone which stimulates growth and cell reproduction. If this hormone is lacking, stunted or even halted growth may become apparent. Children with this disorder may grow slowly and puberty may be delayed by several years, or even

indefinitely. Growth hormone deficiency has no single definite cause. It can be caused by mutations of specific genes, damage to the pituitary gland, Turner's syndrome, poor nutrition[11] or even stress (leading to psychogenic dwarfism).

Therefore, all the general physical, radiological findings were delayed in this case, because of deficiency of growth hormone, which were to occur at the age of 18 years or after his date of operation. When the child was around 10 years he was operated so the teeth erupted already will definitely show attrition and the same was appreciated in this case which formed the basis of his age estimation apart from his previous record helped in addition to this. The Supreme court of India has observed that the evidence afforded by the school register should be accepted as best evidence for determining the age in preference to the voter list and ossification test report.[12]

Conclusion

The role of medical expert in dwarfisms is two folds. Firstly to estimate the age that the person is not less than 18 years or not more than 60 years to be eligible for allowances. Although it is very difficult to know the exact age of a dwarf but apart from physical findings any proof like school register, birth certificate and hospital records etc must be given due credence while opining the age as has been done in this case. Secondly, to know the % of disability from his height that can be done easily. This was indeed a unique case which we want to share it with all the readers.

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