Thanatophoric Dysplasia – A Rare Case Report

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Abstract: Thanatophoric dysplasia (TD) is one of the rare lethal osteochondrodysplasia. Skeletal dysplasia constitute heterogenous group of bone disorders resulting in abnormal shape and size of skeleton. The reported incidence is about 1 in 60,000 births. Here we are reporting the case of PGR with 18 weeks of gestation USG showing the fetus with short stubby long bones with widened metaphysis, large skull and frontal bossing. Ultrasonographic diagnosis was suggestive of thanatophoric dysplasia. Medical termination of pregnancy was done at 18 weeks of gestation after informed consent from affected couple. [Poojan D SEAJCRR 2017; 6(1):26-27]

Key Words: Thanatophoric dysplasia, dwarfism, ultrasound, MTP

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Introduction: Thanatophoric dwarfism (TD) literally meaning death seeking dwarf is the most common form of lethal bone dysplasia with a prevalence of 1 in 10,000[1]. Affected neonate shows marked underdevelopment of the skeleton and short limb dwarfism. Diagnosis of this condition is made by ultrasonography usually in the second trimester[2]. We are reporting this case as this is a unique autosomal dominant disorder which can occur even with normal parents.

Case Presentation: A 30 year old primigravida, healthy, non-consanguineously married woman was brought to the hospital at 18 weeks of gestation for antenatal evaluation. The pregnancy was reported uneventful. There was no family history of genetic disorders or any other relevant past history. Three dimensional ultrasound examinations showed a single live fetus, and amniotic fluid was adequate. Biparietal diameter of the fetus was corresponding to 18 weeks and 4 days of gestation with short bowed tubular bones of both upper and lower extremities. Both the femurs showed telephone handle appearance. With these findings, diagnosis of thanatophoric dwarf was made. Medical termination of pregnancy was performed at 18 weeks of gestation. On examination, the fetus (male) was weighing 300 grams. There was macrocephaly, frontal bossing. Both the upper and lower limbs were grossly shortened and brachydactyly was present. Femurs were curved (telephone receiver femurs).The placenta was found to be normal. The macrocranium with no clover-leaf shaped skull and the "telephone receiver" femurs makes the differential diagnosis between type 1 and 2, this case being a type 1 thanatophoric dysplasia. However, religious and cultural beliefs were a hindrance to futher autopsy and radiological examination.

Figure 1: Ultrasonography showing Short Limbs and telephone handle appaerance of both femur

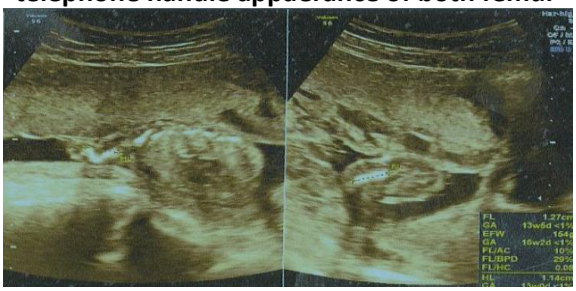

Figure 2: Aborted fetus with relatively large head, frontal bossing, short limbs and telephone handle appreance of both femur

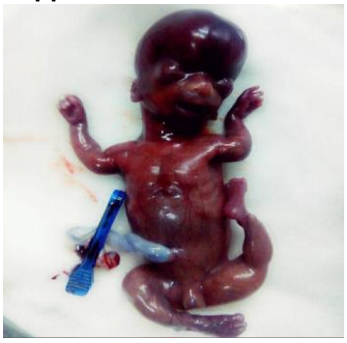

Figure 3: Post mortem infantogram showing relatively large head ,shortened Limbs ,telephone handle femur appearance and Frontal bossing

Discussion: Thanatophoric dysplasia is a very rare skeletal dysplasia with a global incidence of 1 in 50,000 and Indian incidence of 1 in 100000. Male and female were equally affected in this condition[3, 4].Thanatophoric Dysplasia (TD) is characterized by an abnormal head, face, thorax, and skeleton. Features suggestive of TD are megacephaly, occasionally with cloverleaf-shaped skull. The face has excess skin which usually yields a "boxers face" appearance, with frontal bossing and depressed nasal bridge with very short limbs and small scapula. The vertebralbodies are greatly reduced in height with wide spaces between them. The rib cage is small, leading to respiratory insufficiency and often to death[5]. There are two types of thanatophoric dysplasia based on appearance of long bones and skull. Type 1 is the commonest with the curved long bones (shaped like a telephone receiver) with normal skull. Type 2 is associated with clover leaf shaped skull and straight femur[4]. Autosomal mutations in the fibroblast growth factor receptor 3 gene (FGFR3), which has been mapped to chromosome band 4p16.3, results in both subtypes. Fetus with TD usually dies within 48 hours because of pulmonary hypoplasia which is because of narrowing of thorax which leads to respiratory insufficiency. The sonographic criteria regarding the long bones in the diagnosis of TD are severe rhizomelicmicromelia with bowing, length of limbs being less than third percentile for gestational age[6]. It is possible to recognize short limbs in fetuses beginning as early as 13 weeks of gestation, when femur length can be routinely measured on ultrasound[7].Counselling of parents of fetus with TD is the most important part of management in this disease. Without proper genetic counselling, most of the affected couple would be too worried to have further pregnancy. Since the majority of cases of TD occur sporadically, it is important to counsel that the recurrence risk is low for only one previously affected fetus and that the extended family members of the proband are not at increased risk. A general empiric recurrence risk for this entity was estimated at only 2%. To relieve the parental anxiety in such low risk couple, prenatal ultrasound examination may be offered in subsequent pregnancies to identify features suggestive of TD. If indicated, amniocentesis may be offered and the diagnosis may be done by molecular analysis[8].

Conclusions: This case is published to highlight the importance of early booking and anomaly scan for early detection of such congenitally malformed foetuses. Where the affected parent consents, termination of pregnancy can be offered, when a case of Thanatophoric Dysplasia is diagnosed. Post-natal radiological examination and detailed autopsy and chromosomal analysis are essential to identify the type of skeletal dysplasia. Proper genetic counselling of both parents should be done before next conception.

References:

1. Chandrasekharan N, Bhide A. FetalDysmorphology. in: Bhide A, Arulkumaran S, Damanio KK, Daftary SN(Eds.), Practical Guide to HIGH-RISK PREGNANCY & DELIVERY, A South Asian Perspective. 4 (India, Reed Elsevier India Private Limited, 2015) p22.
2. Naveen NS, Murlimanju BV, Kumar V, Pulakunta T, Jeeyar H. Thanatophoric dysplasia: A rare entity. Oman Med J 2011;26:196-7.
3. SangeetaArya, KiranPandey, Disha Gupta, ShefaliPande "Thanatophoric dysplasia: a rare entity" Int j ReprodcontraceptObstetGynecol 2014, 251-253.
4. Wilcox, William R. et al. "Molecular, radiologic, and histopathologic correlations in Thanatophoric dysplasia" American journal of Medical genetics, 1998, 274-281.
5. Chen CP, Chern SR, Stuh JC, Wang W, Yeh LF, Chang TY, Tzen CY. Prenatal diagnosis and genetic analysis of type 1 and 2 thanatophoricdysplasia.PrenatDiag 2001; 21:89-95.
6. Pritzer HA, Murray RO. Congenital shortness of stature. The radiology of skeletal disorders.3rd ed. Vol II. Edinburgh: Churchill Livingstone;1990.p.962-3.
7. Kulkarni ML, Sureshkumar C, Venkataramana V, Koshy S, Bhagyavathi M, Reddy GS, Journal of Indian Paediatrics 1994, 31, 1405-1410.
8. Lam AC, Lam YY, Tong TM, et al. Thanatophoric dysplasia type 1 (TD1) without "telephone receivers". HK J Paediatr 2006;11:320-323.

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