Congenital Generalised Hypertrophy of Feet

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Introduction

Local hypertrophy, gigantism or overgrowth of hand, foot, part of it (Macrodactyly) or of full extremity are commonly seen in Klippel Trenaunay Parkes Weber Syndrome. However congenital generalized hypertrophy of feet is a rare presentation and a search of the literature revealed one case report in a 25 year old female, a similar case is being presented here.

Case Report

A12 year old boy presented to our Department of Physical Medicine and Rehabilitation, Chhatrapati Shauji Maharaj (CSM) Medical University, Lucknow, with generalized hypertrophy of feet since birth. There was no history of any systemic complaints. The antenatal history was not significant. There was no history of radiation, drug abuse, tobacco and alcohol intake or any other addiction which is known to be injurious in the antenatal period. This boy was the second son of his non-consanguinous parents with no family history of similar complaints. At the time of birth his feet were of abnormally large size and disproportionate to his body.

According to his father, the overall size of his feet slowly increased. They were able to find a suitable footwear for his son. His main concern was to have a comfortable and proper footwear for him.

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Bibliography

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The physical examination revealed that he was having generalized hypertrophy of his feet as compared to size of his both upper limbs and trunk along with undescended testis on right side. He was otherwise active and regularly going to school but unable to take part in the field games. His activities of daily living were within normal limits. His feet were having generalized hypertrophy with large size of all the toes which were apparently proportionate to the feet. On palpation there was well defined diffuse softness in plantar and dorsal surface of feet. There was no neurological deficit. The range of movements of hip, knee, ankles were within normal limits.

Digital skiagram of both feet showed marked thickening of third metatarsal of left foot alongwith proportionately smaller middle phalanx in all the toes. Dense soft- tissue shadow all around foot was seen. The bony trabeculae and density were within normal limits and generalized hypertrophy was seen in all bones of both feet.

High resolution sonography and colour doppler imaging of peripheral arterial tree of both lower extremities was done with direct contact scanning technique, which revealed normal thickness in the walls and no calcification. On colour flow imaging, there was evidence of marked increased flow in the arterial tree, more so on the left side. The venous tree was normal on both sides and there was no evidence of arterio-venus malformation in the feet. The inference of this study was that there was high arterial flow in the left lower limb arterial tree as compared to the right side. CT scan of the head showed no abnormality in the piruitary fossa and adjoining areas.

Technique of special footwear fabrication: In this case normal shoe could not be used. The conventional shoelast was also not possible to be used to make a shoe due to abnormal size of his feet, therefore we took plaster of Paris (POP) cast of his feet and made plaster replicas of the feet , modified them to make lasts.

Seasoned chrome leather was mounted on the POP shoelast for the upper. Similarily seasoned leather for sole was stitched with the upper using Goodyear belted process. Thus modified orthopaedic boot was prepared with closed toebox so as to protect the abnormal sized toes from injury. The boy was comfortable and happy with the newly designed orthopaedic boot. With the shoes he could even walk long distances and perform cycling as well.

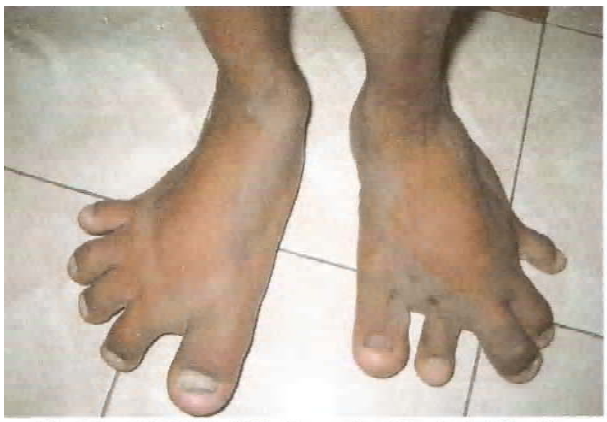

Fig. No. -1A Clinical Photograph of Feet : In Standing

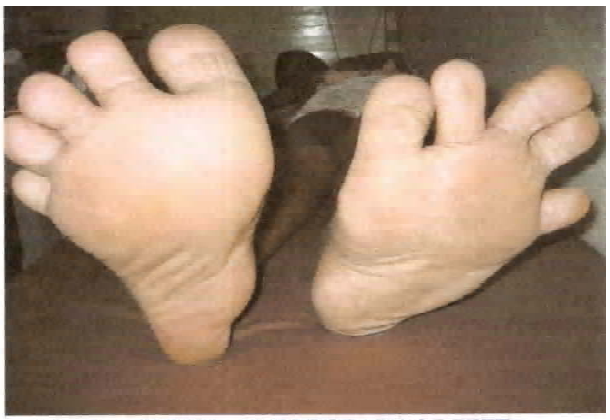

Fig. -1B CLINICAL PHOTOGRAPH OF FEET

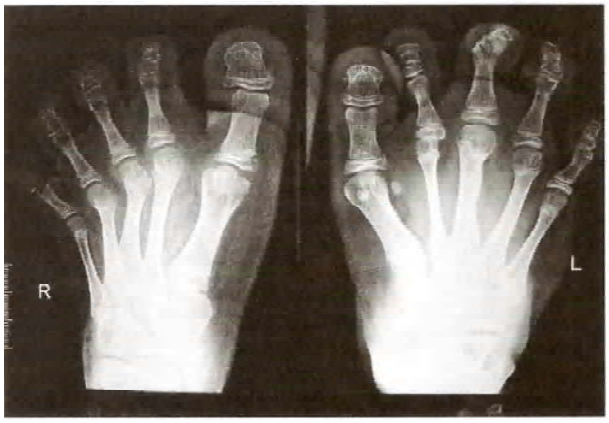

Fig. No. -2A Digital X-ray of feet - A.P. View

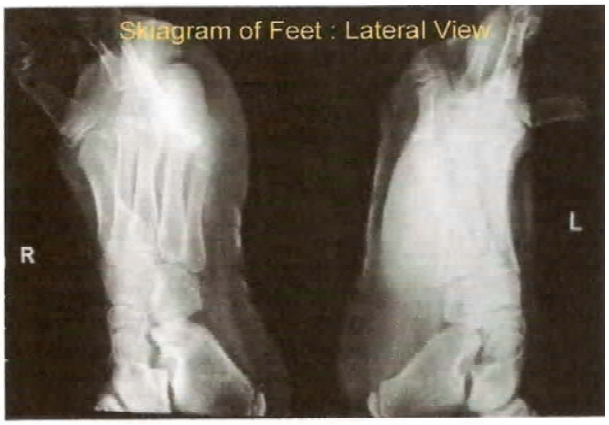

Fig. No. -2B Digital X-ray of feet - Lat. View

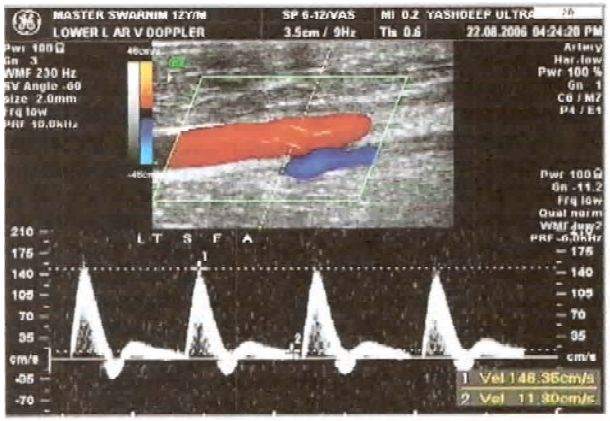

Fig. No. -3 Colour Dopler Study

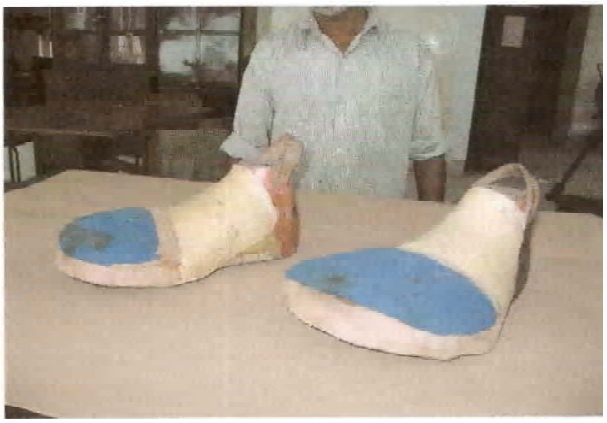

Fig. -4 Special Shoe Last

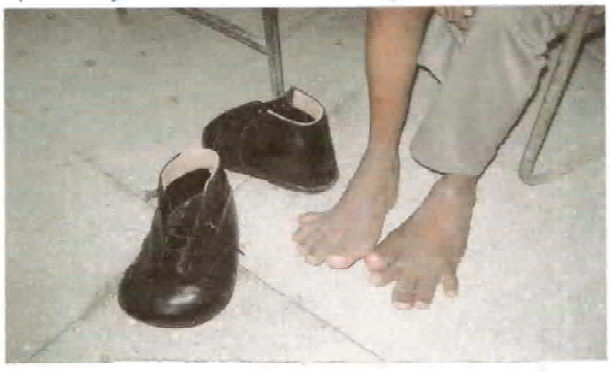

Fig. No. -5 Special Orthopaedic Boot

Discussion

The enlargement of body part is always a matter of investigation to pinpoint its cause. Gigantism is defined as excessive stature, the result of over secretion of growth hormone prior to the skeletal maturity. Overgrowth syndromes are generally characterized by the overgrowth of involved parts. The typical condition in this group is Klippel Trenaunay Syndrome, (KTS). KTS is characterized by a triad comprising of soft tissue hypertrophy, diffuse venous malformations and capillary haemangioma[1]. The vascular malformation in the Parkes Weber Syndrome is an arterio-veneous (AV) malformation which grows in proportion to the growth of the child and also in relation to the haemodynamic changes such as increased blood flow, causing vessel dilatation, obstruction and thrombosis[2].

Progressive congenital hypertrophy of feet in 25 years old female whose mother has taken Thalidomide during pregnancy was also reported[3]. They excluded neurofibromatosis, AV Fistula, KT Syndrome and Adrenal tumor etc.

Macrodystrophia Lipomatosa (ML), a case of localized overgrowth was also reported that was subjected to radiological evaluation[4]. In this case the child was having enlargement of bony as well as soft tissues involving second and third toe of the right foot.

A neglected case of ML of the foot in an elderly man was also reported[5]. According to them ML was a rare disorder, characterized by the three dimensional enlargement of one or more fingers or toes with predominantly fibroadipose tissue.

The present case was extremely challenging from the diagnostic point of view. The localized gigantism was excluded from the diagnosis since hypertrophy was generalised and all the components of feet showed concomitant increase in size. Neurofibromatosis was excluded since there was noevidence of Café-au-lait spots, scoliosis, congenital bowing, pseudoarthrosis and plexiform neuroma etc. Further there was no evidence of Arterio-venous malformation in the feet or limbs, Kilppel-Trenaunay syndrome, Hyperostosis, Parkes-Weber syndrome and an adrenal tumor.

According to available literature the treatment includes multiple closing wedge osteotomies in the forefoot and multi-stage debulking of the tissue in association with skin reductions. However, the parents of the present case refused any such surgical intervention.

Authors believe that this is the first reported case of bilateral muscular and bony hypertrophy of the feet.

References

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