



## Lipoblastoma – A rare paediatric foot tumour

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**Lipoblastoma, a rare benign tumour arising from embryonic fat, is usually found in areas of abundant adipose tissue. Various reports describe a predilection of lipoblastoma for sites with primitive adipose tissue such as axilla, neck, retroperitoneum and pre-vertebral soft tissue. The plantar aspect of the foot is an extremely rare site due to scarcity of fatty tissue. Differential diagnosis includes lipomas, fibromyxolipomas and liposarcomas. Age of presentation, chromosomal markers and histopathological examination help in arriving at final diagnosis. Radical surgeries are not advocated ; however, complete excision is necessary to avoid recurrence.**

**Keywords :** lipoblastoma ; foot.

### CASE REPORT

A two and a half-year-old male child was brought in by his father with a huge mass in his left foot for the last one and a half year. The parents first noticed a pea sized mass at the age of eleven months, on the plantar and medial aspect of the left foot. The swelling gradually progressed since then to the present size of about 6 × 8 cm, extending from the plantar aspect to the dorsum of the foot (fig 1). The onset of this mass was neither associated with fever nor trauma. Physical examination revealed a globular, lobulated mass, firm in consistency. It was nontender, noncompressible and non-

### INTRODUCTION

Lipoblastomas are rare benign tumours composed of immature fat cells separated by connective tissue septa of various thicknesses with focal myxoid changes. They are more common in males, occurring before seven years of age in areas of abundant adipose tissue. Two forms of these tumours exist : one is deeply seated and poorly circumscribed and the other is more superficial and well circumscribed. Slow growth pattern, absence of cellular atypia and chromosomal marker help in differentiating it from liposarcoma. A recurrence of 14-25% is reported after surgical excision.

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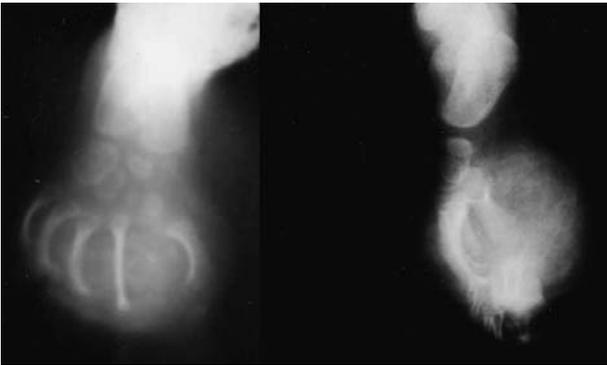
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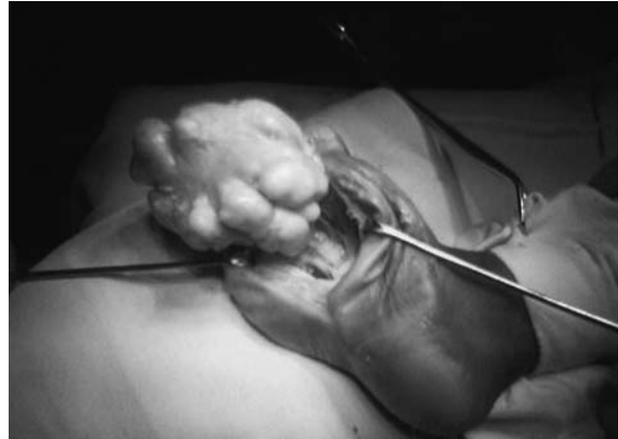
**Fig. 1.** — Clinical photograph showing a huge swelling extending from the plantar to dorsal aspect of the right foot.



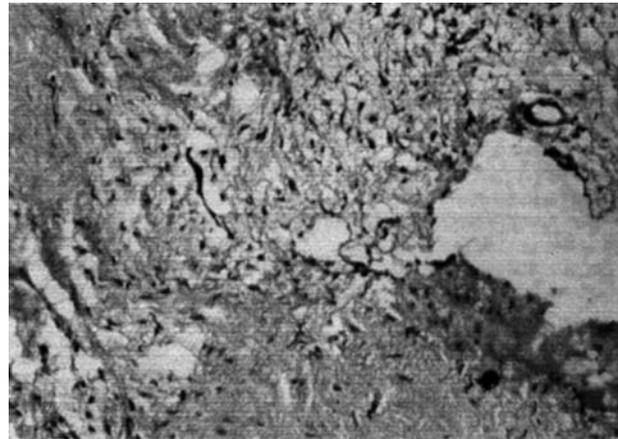
**Fig. 2.** — Antero-posterior and lateral radiograph showing the pressure effect on the metatarsals without any bony erosion.

pulsatile. The skin over the mass was glossy and shiny with prominent veins over it. Distal neurovascular examination was normal.

Plain radiographs (anteroposterior & lateral view) of the foot showed soft tissue swelling extending from the plantar to the dorsal aspect of the foot through the intermetatarsal space. The swelling resulted into scalloping and thinning of the metatarsals due to its pressure effect (fig 2). Fine needle aspiration cytology (FNAC) of the mass revealed small lobules of immature fat cells, separated by connective tissue septa of various thicknesses with focal myxoid changes. The



**Fig. 3.** — Completely excised tumour showing a 5 × 7 cm sized encapsulated, firm and lobulated mass.



**Fig. 4.** — Histopathological examination showing small lobules of immature fat cells, separated by connective tissue septa of various thickness with focal myxoid changes.

lobules also showed a plexiform capillary network. There was no evidence of any nuclear pleomorphism, atypical mitoses or invasive malignancy. The diagnosis of benign lipoblastoma was given on the basis of the above findings.

Complete excision of the tumour was performed using a single incision on the plantar aspect of the foot. Gross examination of the resected tumour (fig 3) showed a 5 × 7 cm sized encapsulated, firm, lobulated mass. Gross examination on cut section showed lobulations with internal septation (fig 4). Histological examination further confirmed the diagnosis of benign lipoblastoma.

## DISCUSSION

Lipoblastoma is a rare benign soft tissue tumour of childhood, arising from embryonic fat, and is usually found in areas of abundant adipose tissue. Other denominations for this lesion are embryonic lipoma, foetal lipoma, lipoblastic tumour, and congenital lipomatoid tumour. Lipoblastoma is more common in males (approximately 80%). It is usually located in the subcutaneous soft tissue (benign lipoblastoma) or in the deep interstitial tissue (benign lipoblastomatosis) (5).

Seventy percent of lipoblastomas occur in extremities, more so in the lower limbs. However, there are reports describing a predilection of lipoblastoma at sites with primitive adipose tissue such as axilla, neck, chest, retroperitoneum and prevertebral soft tissue. The plantar aspect of the foot, as seen in the present case, is an extremely rare site due to the scarcity of the adipose tissue in this area (1).

A lobulated architecture, the presence of adipose tissue, thin septa, peripheral lobules of more immature and therefore less specific tissue, and a peripheral pseudocapsule clinches the diagnosis (3). Differential diagnosis includes lipomas, fibromyxolipomas or spindle cell lipomas and soft tissue sarcoma (2). Liposarcoma is rare under ten years of

age. Chromosomal markers further help to discriminate between liposarcoma and lipoblastoma. Recent studies describe rearrangements of chromosome 8 q11-q13 regions as a new discriminative marker that distinguishes lipoblastoma and lipoblastomatosis from myxoid liposarcoma (4). In the absence of any atypical lipoblasts, mitoses, hyperchromatic nuclei, the possibility of malignancy (liposarcoma) is extremely remote.

The treatment is total excision to avoid recurrence. However, radical mutilating surgery is not advocated for these tumours considering their benign nature (2). Local recurrence (14-25%) is a possibility, so careful follow-up is essential, at least for one year.

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