The Journal of Laryngology and Otology
April 1989. Vol. **103.** pp. 429–431

Ossifying lipoma

J. D. BLANSHARD and D. VEITCH (London)

Abstract
Lipomata are the most common benign tumour of the head and neck. They may undergo a variety of changes, one of which is ossification which, although rarely seen, has a characteristic radiographic appearance. We present a case of a retropharyngeal lipoma which demonstrates ossification and discuss the features which differentiate this from an osseous lipoma. Current theories on the aetiology of lipomata and their ossification are reviewed.

Introduction

Ossification is rarely seen in benign tumours with the notable exception of dermoids and teratomas (Evans, 1956). Ossified lipomata of the head and neck have been described in only four cases in the literature (Hughes 1966; Godby, *et al.*, 1971; Dutescu, *et al.*, 1973; Farhood, *et al.*, 1978; Allard, *et al.*, 1982). We present an interesting case with CT scans and discuss changes in lipomata.

Case report

A 40-year-old Greek surgeon presented with a firm, non-tender mass in the right side of the neck antero-medial to the carotid sheath at the level of the hyoid bone. He first noticed its presence four months previously with the mass demonstrated on cervical spine X-ray (Fig. 1) as a calcified lesion approximately 3 cms. in size though, remarkably, he had no symptoms of dysphagia. Its location was confirmed on CT scanning as retropharyngeal, apparently contiguous with the cervical spinal periosteum (Fig. 2). Serum calcium and alkaline phosphatase levels were within normal limits.

At operation, the mass was excised by blunt dissection from the retropharyngeal space via a lateral pharyngotomy approach (Fig. 3). Post-operative recovery was without complication, the patient returning to practice in Greece.

Histological analysis following decalcification revealed a combination of mature adipose tissue with fibrous connective strands. Throughout the tumour there were irregular trabeculae of lamellar bone without any haematopoeitic elements (Figs. 4, 5).

Discussion

Lipomata are the commonest mesenchymal neoplasms although only 13 per cent of them occur in the head and neck (Barnes, 1985). Most of these lie in the subcutaneous region of the posterior neck whereas retropharyngeal lipomata are rare, with less than twenty documented cases (Younus, 1980; Som *et al.*, 1986). When lipomata are associated with bone they are known as osseous lipomata; these are subdivided into intraosseous (medullary) and parosteal (Ramos *et al.*, 1985). In a recent review of the literature, thirty-two intraosseous and one hundred and fifty parosteal lipomata were described (Wilner, 1982), the latter being contiguous with the periosteum and in a minority of cases associated with underlying bony changes such as hyperostosis, bowing of the bone or cortical erosion (Fleming *et al.*, 1962). Where there is marked hyperostosis the tumour is reported to be firmly attached to the cortex of the underlying bone requiring separation with an osteotome (Jacobs, 1972). The most frequent site of occurrence described was the thigh, with both upper and lower extremities accounting for all but three cases (Fleming *et al.*, 1962).

The simple lipoma consists of mature fat cells interspersed with fibrous strands and circumscribed by a fibrous capsule; it



FIG. 1
Plain lateral cervical spine X-ray showing calcified area anterior to C_3.

https://doi.org/10.1017/S002221510010917X Published online by Cambridge University Press

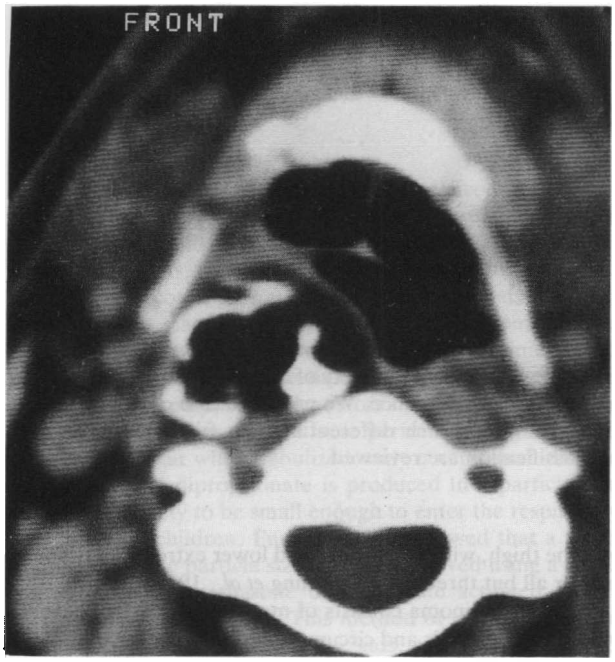


FIG. 2

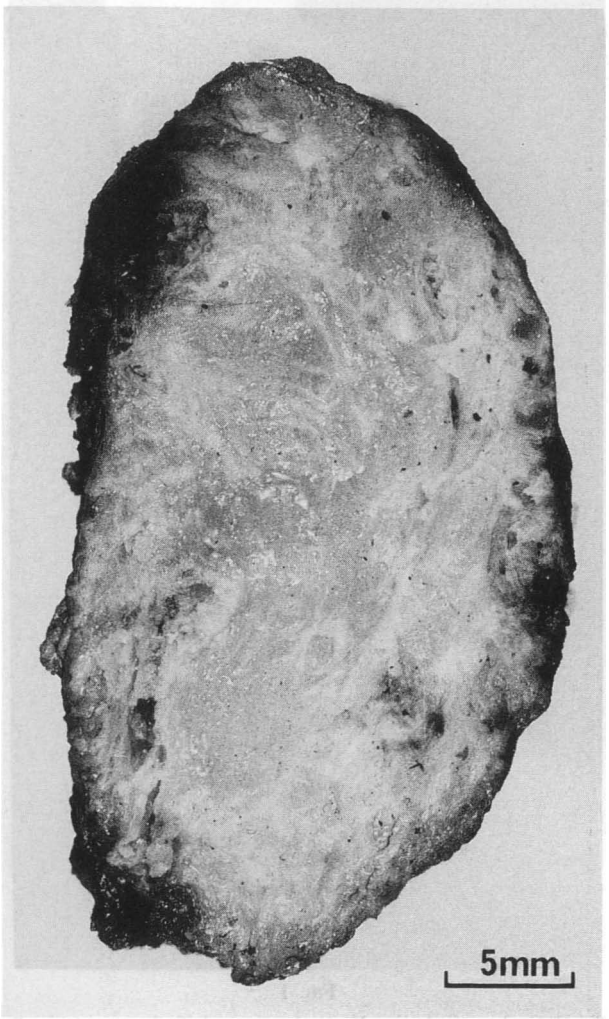


FIG. 3

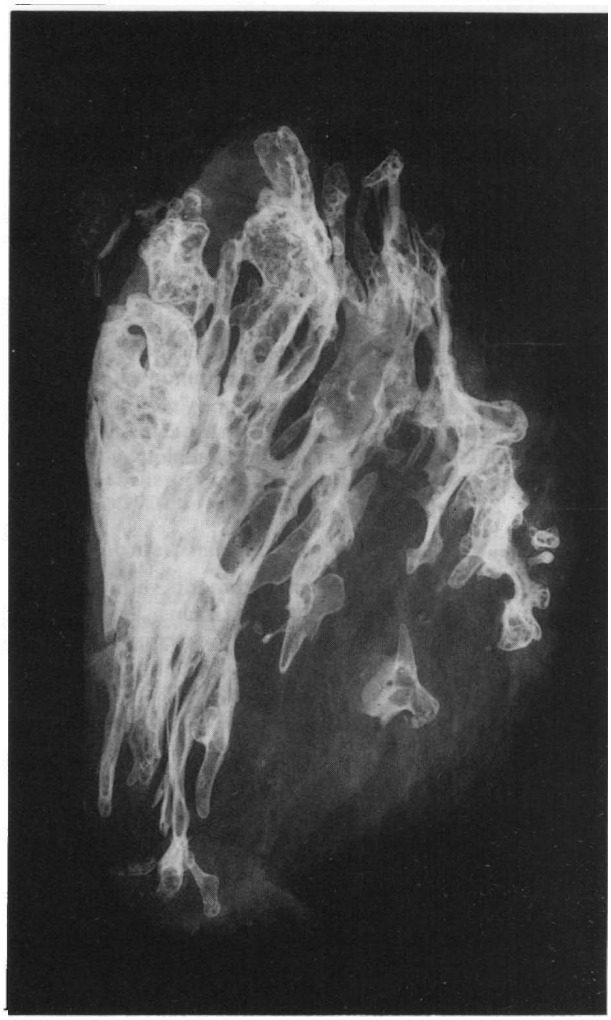


FIG. 4

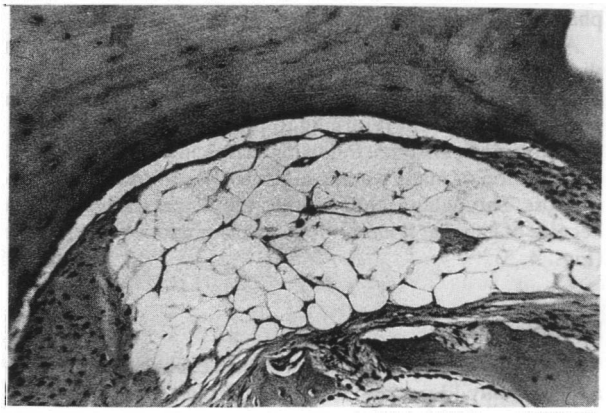


FIG. 5

FIG. 2
Coronal CT scan at the level of C_3 cervical vertebra.

FIG. 3
Cut section of gross specimen.

FIG. 4
Radiograph of gross specimen showing irregular bony trabeculae against a radiolucent background.

FIG. 5
Photomicrograph of the specimen showing bony trabeculae surrounding mature fat cells (H&E original magnification ×100).

https://doi.org/10.1017/S002221510010917X Published online by Cambridge University Press

may reach a considerable size and may be multiple. Occasionally myxomatous or angiomatous elements may be present (Anderson, 1976) and infrequently calcification is seen in focal areas. Infiltrating lipomata have been reported which have to be distinguished from liposarcomas, the malignant variant (Bennhoff and Wood, 1978; Scherl *et al.*, 1986).

This case depicts an even more uncommon presentation of a lipoma in which ossification has occurred. Although a few cases have been described occurring in the extremities there are only four cases in the literature occurring in the head and neck region most of which were related to the oral cavity (Allard *et al.*, 1982). Differentiation of the ossifying lipoma from a parosteal lipoma with hyperostosis was only determined at operation. The CT scans could not confirm the absence of bony connection between vertebral body and tumour. At operation removal of the lipoma was accomplished by blunt dissection without force and examination of the opposing surfaces of the tumour and vertebral body showed no continuity with periosteum.

The aetiology of the simple lipoma is obscure although a congenital origin and trauma have been suggested. Lin and Lin (1974) proposed that multipotential cells of embryonic origin differentiate into lipomata under hormonal influence and the implication of trauma is in the discovery rather than aetiology. Ossification within lipomata has in the past been regarded as a metaplastic change (Plaut, *et al.*, 1959) but recent experimental work has suggested that blood borne monocytes enter the tissue releasing an osteo-inducing factor which brings about a transformation of fibroblasts into osteoclasts (Buring, 1975). These then give rise to the membranous bone formation.

Ossification within a lipoma does not reflect any sinister change in the tumour. It is seen on plain X-rays although with increase use of CT scanning a provisional diagnosis may readily be made by the appearances of the tumour. Treatment is curative by surgical excision.

References

Allard, R. H. B., Blok, P., Van Der Kwast, W. A. M. and Van Der Vaal, I. (1982) Oral lipomas with osseous and chondrous metaplasia. Report of two cases. *Journal of Oral Pathology*, **11:** 18–25.

Anderson, J. R. (1976) (Ed) Muir's Textbook of Pathology, 10th edn., 293–294 pp.

Barnes, L. (1985) (Ed) Tumors and tumorlike lesions of the head and neck, In: *Surgical Pathology of the Head and Neck* Vol. 1, Marcel Dekker, New York 156, 747–758 pp.

Bennhoff, D. F. and Wood, J. W. (1978) Infiltrating lipomata of the head and neck. *Laryngoscope*, **88:** 839–848.

Buring, K. (1975) On the origin of cells in heterotopic bone formation. *Clinical Orthopaedics and Related Research*, **110:** 293–302.

Dutescu, N., Georgescu, L. and Hary, M. (1973) Lipoma of submandibular space with osseous metaplasia. *Oral Surgery*, **14:** 98–103.

Evans, R. W. (1956) Histological appearances of tumours. E & S Livingstone, Edinburgh and London 44 pp.

Fleming, R. J., Alpert, M. and Garcia, A. (1962) Parosteal lipoma. *American Journal of Roentgenology*, **87:** 1075–1084.

Godby, A. F., Drex, P. B. and Field, J. J. (1971) Sublingual lipoma with ectopic bone formation. *Oral Surgery*, **14:** 625–629.

Hughes, CH. L. (1966) Intraoral lipoma with osseous metaplasia. *Oral Surgery*, **21:** 576–578.

Jacobs, P. (1972) Parosteal lipoma with hyperostosis. *Clinical Radiology*, **23:** 196–198.

Lin, J. J. and Lin, F. (1974) Two entities in angiolipoma: a study of 459 cases of lipoma with review of the literature on infiltrating angiolipomas. *Cancer*, **34:** 720–727.

Plaut, G. S., Salm, R. and Truscott, D. E. (1959) Three cases of ossifying lipoma. *Journal of Pathology and Bacteriology*, **78:** 292–295.

Ramos, A., Castello, J., Sartoris, D. J., Greenway, G. D., Resnick, D. and Haghighi, P. (1985) Osseous lipoma: CT appearance. *Radiology*, **157:** 615–619.

Scherl, M. P., Som, P. M., Biller, H. F. and Shak, K. (1986) Recurrent infiltrating lipoma of the head and neck. *Archives of Otolaryngology*, **112:** 1210–1212.

Som, P. M., Scherl, M. P., Rao, V. M. and Biller, H. F. (1986) Rare presentations of ordinary lipomas of the head and neck. *American Journal of Neurodiology*, **7:** 657–664.

Wilner, D. (1982) Radiology of bone tumors and allied disorders. Saunders, Philadelphia, 629–647 pp.

Younus, M. (1980) Retropharyngeal lipoma. *Journal of Laryngology and Otology*, **94:** 321–325.

Address for correspondence:
J. D. Blanshard,
Royal National Throat,Nose and Ear Hospital,
Gray's Inn Road,
London WC1X 8DA.

https://doi.org/10.1017/S002221510010917X Published online by Cambridge University Press