CAVERNOUS HÆMANGIOMA OF THE HAND

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ALTHOUGH Bunnell (1956) writes that blood-vessel tumours are not infrequently encountered in the hand, it has not been possible to trace any comprehensive case reports of cavernous hæmangiomas of the hand without associated skin involvement. These tumours in the hand are rare and present an interesting differential diagnosis of swellings of the hand when the diagnosis is not made obvious by the involvement of overlying skin.

This paper records the details of two patients with a cavernous hæmangioma of the hand and discusses the present views on the ætiology and management of these tumours.

Case 1. Miss M. W., aged 15, attended in August 1959, complaining of a soft swelling on the front of the middle finger of the right hand which had been present for several months. It was occasionally painful. Examination revealed a small tumour of lipomatous consistency on the palmar aspect of the middle phalanx.

At operation under general anæsthetic, using an upper arm cuff tourniquet, a subcutaneous tumour, measuring 5 x 3 x 2 mm., consisting of dilated blood vessels was excised from the antero-lateral aspect of the middle phalanx. Convalescence was uneventful.

Histological Report. There is a rather copious fibrous and fibroblastic stroma in which there are

numerous irregular spaces which contain red blood cells (Fig. 1). These spaces are up to about 500 microns in diameter and they are lined by a single layer of flattened endothelium. A certain amount of hæmosiderin has been deposited in the stroma of the tumour. In one of the vascular spaces an organizing thrombus is present (Fig. 2).

Pathological diagnosis: cavernous hæmangioma.

FIG. 2.—An organizing thrombus in a vascular space. ($\times 60$)

FIG. 1.—Typical irregular endothelium-lined spaces in a fibroblastic stroma. ($\times 60$)

Case 2. Miss N. B., aged 15, attended in December 1959, complaining of a swelling on the dorsum of the right hand which had been present for over 12 months and was slowly getting larger. It had recently been painful. Examination revealed a soft tissue swelling 1 cm. in diameter on the dorsum of the hand between the heads of the fourth and fifth metacarpals (Fig. 3). The tumour was not compressible, but pressure caused pain radiating into the adjacent surfaces of the ring and little fingers, where there was slight impairment of sensation to light touch. X-ray showed no lesion. The patient also suffered from a severe congenital aplasia of the left hand.

At operation under general anæsthetic, using an upper arm cuff tourniquet, a subcutaneous tumour, measuring 8 mm. in diameter, consisting of a dilated mass of blood vessels extending into the fourth interosseous space, was excised without difficulty. Convalescence was uneventful.

FIG. 3.—The tumour between the fourth and fifth metacarpal heads of Case 2.

Histological Report. Sections of this tissue showed the tumour mass to be a small cavernous-type angioma, parts of which are undergoing sclerosis. In places the blood spaces are dilated and lined by flattened epithelial cells but, at focal points, fibroblastic proliferation and obliteration of these spaces is occurring. There is no evidence of malignancy.

Pathological diagnosis: cavernous angioma.

Ætiology

All angiomas are considered to be of congenital origin (Willis, 1953; Bunnell, 1956). The majority are not true tumours but vascular malformations or hamartomas. These have no true power of progressive disproportionate growth, though the appearance of growth is simulated by hæmorrhage, cystic changes, inflammation, thrombosis and œdema (Willis, 1953). However, true vascular tumours occur, developing from ectopic rests of vasoformative mesodermal tissue (Matthews, 1951). These tumours are at first solid and consist of endothelial cells, similar to those that line blood vessels, interspaced with strands of connective tissue. Later, these solid tumours canalize and differentiate into a variety of clinical forms (Shaw, 1928; Pack and Ariel, 1958; Matthews, 1951; Ribbert, 1898). This vasoformative tissue is capable of growth by budding of new cells and canalization of pre-existing solid tissue (Matthew, 1951; Pack and Ariel, 1958). Other mesodermal inclusions may or may not contribute (Pack and Ariel, 1958).

Treatment

The treatment of choice—when possible—is excision of the tumour, as was carried out in the above cases, though it is said that control of hæmorrhage after release of the tourniquet may be a problem (Bunnell, 1956). However, this

may be avoided by the knowledge that there is usually only one afferent and one efferent vessel with no anastomotic communications with surrounding vessels (Ribbert, 1898).

In the second case reported here the afferent and efferent vessels were associated directly with the vessels of the fourth dorsal interosseous muscle. In neither of the cases reported here was there any post-operative hæmatoma formation despite the fact that the tourniquets were not released until the wounds had been sutured and a pressure dressing applied, presumably because the tumours were small and could be removed completely. Because of extensive ramifications it is sometimes difficult to remove the whole tumour and recurrences are possible (Posch, 1956; Bunnell, 1956). Occasionally the tumour can regress as a result of spontaneous thrombosis—there was histological evidence of this to be found in Case 2 (Fig. 2).

Bailey and Love (1959) suggest, among other methods, that the tumour should be excised using electric cautery; this would seem to be unnecessary, except in areas where hæmorrhage cannot be controlled by the use of a tourniquet and undesirable in the hand because of the possibility of damage to important structures.

Other methods used include freezing (Pack and Ariel, 1958) and the injection of sclerosants such as boiling water, saturated saline and ethamphen foam (Matthews, 1951). Saturated saline is very effective and reasonably safe, though injection subcutaneously outside the tumour will lead to sloughing.

Discussion

Angiomata of the hand are uncommon. Posch (1956), in a series of 147 personal cases of tumours of the hand, found eight blood-vessel tumours, including arterio-venous aneurysms. Jenkins and Delaney (1932) reviewed benign angiomatous tumours of the skeletal muscles and found seven in the hand out of 256 cases culled from the literature. Recently, in a review of 300 consecutive tumours of the hand, Stack (1960) found six of vascular origin.

The tumour may develop in any part of the hand but the thenar, hypothenar and deep palmar spaces are favoured (Bunnell, 1956). Compressibility is a characteristic feature (Bailey and Love, 1959), but may not be present owing to fibroblastic proliferation and obliteration of the vascular spaces. Involvement of the overlying skin by a capillary malformation is not uncommon, making treatment by excision more difficult.

Angiomata may remain quiescent for years but sometimes grow to a considerable size.

(Watson and McCarthy, 1940; Pack and Ariel, 1958). A few regress spontaneously (particularly on the scalp), but the majority grow relentlessly with occasional sudden dramatic increases in size (Matthews, 1951). Pack and Ariel (1958) point out that they often increase in size for the first time during pregnancy and less often at the menarche; this is probably due to retention of fluid by the body and the associated increase of blood volume at these times.

It is interesting to note that in both the cases described above the tumours were first observed,

and in one case noticed to increase in size about the time of the menarche.

Acknowledgments

I wish to thank Mr. J. C. Scott for his advice and for his permission to report these cases. My thanks are also due to Dr. R. Martlew of the Department of Pathology, Princess Margaret Hospital, Swindon, for the histological report on Case 1, and to Dr. M. S. Dunnill of the Pathological Department of the United Oxford Hospitals for the histological report on Case 2.

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