Heterotopic Bone Formation in Abdominal Scars

S. I. DREW

SUMMARY

Heterotopic bone formation in abdominal scars has not often been described. Two cases are presented and the literature is discussed.

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eterotopic bone formation in abdominal scars has been frequently documented and until 1966 only 19 cases had :en reported.[1] The bone may become symptomatic and erefore recognition of the condition is of clinical im-)rtance.

CASE REPORTS

ase 1

A 50-year-old man presented in February 1973 with testinal obstruction. He had a history of a splenectomy rough a left upper abdominal paramedian incision in 68 and a laparotomy through a right mid-abdominal ramedian incision in 1971. On admission, a laparotomy :ision through the left paramedian scar showed a bony ass, 4 cm², which was not attached to any adjacent bony ucture. Histopathology confirmed the presence of bone ig. 1).

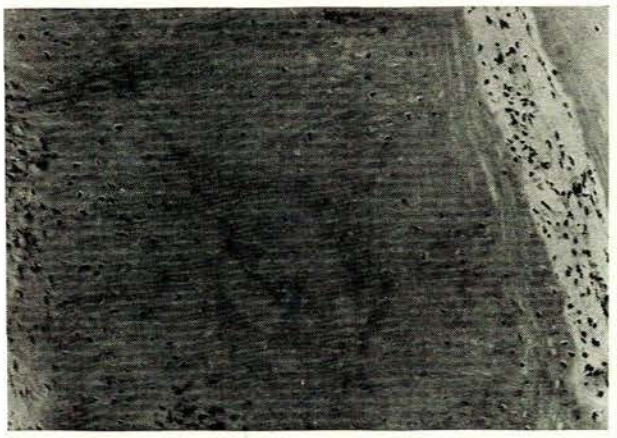

Fig. 1. Photomicrograph showing presence of bone.

partment of Surgery, University of the Witwatersrand, Johannesburg
I. DREW, M.B. B.CH.

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Case 2

A 72-year-old woman presented in February 1973, with symptoms of choledocholithiasis. She had a history of a laparotomy through a midline upper abdominal incision in 1967, for pancreatitis. A laparotomy was performed through the site of the previous incision, and bony material, 4 cm², was identified in the old scar. The bony mass was attached to the xiphisternum. Histopathology confirmed the presence of bone and bone marrow (Fig. 2).

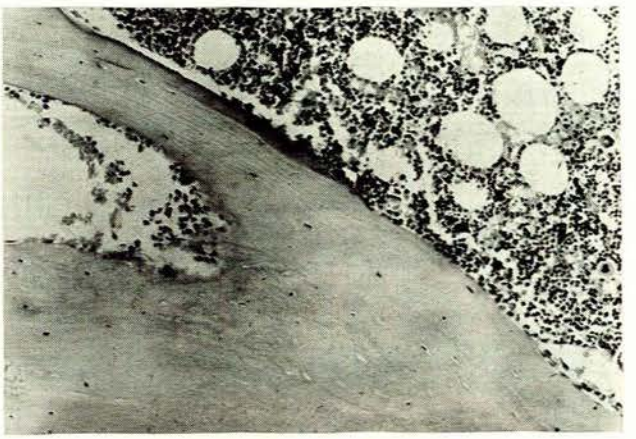

Fig. 2. Photomicrograph showing presence of bone and bone marrow.

DISCUSSION

Previous studies suggest that heterotopic bone formation in abdominal scars is found more often in adult men than in adult women.[1,5] A familial incidence has been reported.[1] The condition is, in addition, more often encountered in upper abdominal incisional scars than in lower abdominal scars, and in longitudinal scars, or the longitudinal component of other incisional scars.[1,5] In the 2 cases described, bone was identified in previous longitudinal, upper abdominal incisional scars.

When the condition has become symptomatic, it has usually done so within a year of the original abdominal incision,[1] and the bony mass may be palpable in the depths of the wound. The patient may experience local discomfort in the line of the scar. Pre-operative radiological diagnosis may readily be made on lateral and oblique views. Owing to their asymptomatic presentation, and because the anteroposterior X-ray projections superimposed the heterotopic calcification on the vertebral column, no pre-operative diagnosis was established in our patients.

Surgical excision is advised where the condition is symptomatic. Extension past the umbilicus from an initial bone islet in the epigastric area does occur, the rate of progression being extremely variable. At surgery, the heterotopic bone may be found in any layer between the subcutaneous tissue and the peritoneum.[1] In the majority of cases the bony mass is not attached to the xiphisternum,[2] but this does occur, and both situations were encountered in the cases described.[1,3] Histopathology may reveal bone, cartilage, and sometimes bone marrow (Fig. 2).

Aetiology

Aetiological factors accounting for the development of bone in abdominal surgical scars have not been established. Surgical trauma to adjacent bony or cartilaginous structures, especially the xiphisternum, is a commonly-accepted theory. Particles of periosteum or perichondrium are dispersed into the surrounding muscle and fascia, with the subsequent initiation of osseous growth. Hence, heterotopic bone formation may be regarded as a type of myositis ossificans. In those cases where the surgical incision does not terminate in the vicinity of a bony or cartilaginous structure, other mechanisms have been postulated, such as metaplasia of multipotent connective tissue cells after the stimulus of surgical trauma.[1,3]

Differential Diagnosis

In both cases presented, no additional factors appeared to account for the deposition of bone in the abdominal wall. Serum calcium, phosphate, and blood urea were within normal limits. There was no history of postoperative wound infection after the initial surgery. Other conditions which may simulate the condition are:

(i) calcification of carcinomatous implants in abdominal wounds;
(ii) dystrophic calcification where calcium is deposited in devitalised tissue without new bone formation;
(iii) hypoparathyroidism and calcification of soft tissue;
(iv) ossifying haematoma—this condition is extremely uncommon—most cases described have been myositis ossificans;[4] and
(v) retained foreign body.

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