NON-OSTEOGENIC FIBROMA OF BONE  
(Fibrous Metaphysial Defect)  

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The term non-osteogenic fibroma of bone was introduced by Jaffe and Lichtenstein in 1942 to describe a distinctive benign lesion occurring near the ends of the long bones in young people. The excellent prognosis of this condition is sufficient reason for separating it from other more serious diseases of bone with which it has previously been confused. Reports in the American literature in recent years seem to indicate that this lesion is far from rare, yet accounts of similar cases are hardly to be found in the British literature. Though there is general agreement over the radiological and histological features of non-osteogenic fibroma of bone, there is still uncertainty as to the nature of the disorder. For these reasons the following case reports and observations may be of interest.  

CASE REPORTS  

Case 1—A boy aged ten years complained of pain in the left leg which had started six weeks previously without antecedent injury or illness. He also noticed a swelling on the outer aspect of the leg. There

![Case 1-Initial radiographs of left tibia.](image)
Case 1—Biopsy tissue showing collections of foamy macrophages against a background of spindle-shaped fibroblasts, with small multinucleate giant cells. (× 200.)

Case 1—An osteoclastic giant cell of larger size than average, together with spindle cells and foam cells. (× 480.)
FIG. 4
Case 2—Initial radiograph of left tibia.

FIG. 5
Case 2—Skeletal survey revealed further lesions in the upper tibia and lower femur of the opposite limb.
was no other relevant medical history. On examination he appeared a normal, healthy boy for his age. There was a slight thickening on the antero-lateral aspect of the lower third of the left leg. It was two inches in diameter, apparently fixed to the bone, neither fluctuant nor tender, and the overlying skin was normal and not adherent.

Radiographs showed an irregular cavity in the outer half of the lowest third of the tibia. The general shape was oval, the longer axis being in the long axis of the tibia. The antero-medial border was sclerotic and the cortex on the posterior aspect was expanded. An appearance of loculation was present (Fig. 1). No other abnormality was found on skeletal survey.


Operation—Exploration revealed no definite soft-tissue swelling, but the outer aspect of the tibia was slightly expanded. The cavity in the bone, which measured 3 × 2 × 1 centimetres, was found to contain soft, yellowish tissue which resembled inspissated pus. The cavity was widely opened and saucerised and, after removal of the contents, the lining was carbolised. The material was sterile on culture. Pathology—On histological examination the specimen was found to consist of rather cellular connective tissue mingled with osteoclastic giant cells and foamy macrophages. There was no evidence of new bone formation. A diagnosis of non-osteogenic fibroma of bone was made (Figs. 2 and 3). The patient made a satisfactory convalescence and there has been no recurrence of the lesion.

Case 2—A girl aged twelve years complained of pain of insidious onset in the lower left leg. There was no history of injury. On examination there were slight swelling and tenderness over the lowest third of the tibia. Ankle movements were full.
FIG. 8
Case 2—The thinned tibial cortex with the underlying lesion. Note the absence of new bone within this tissue. (x 30.)

FIG. 9
Case 2—Edge of a loculus showing a slender bone trabecula in the septal wall. (x 70.)
Radiographs showed a multilocular defect in the posterolateral aspect of the lowest third of the tibia (Fig. 4).

A walking plaster was applied for two weeks. She improved for a time, but six months later the pain recurred. At this time further skeletal radiographs revealed somewhat similar, though much smaller, defects in the lower end of the right femur and the upper end of the right tibia (Fig. 5).

Operation—Postero-lateral approach. A bulge with a bluish tinge was present in the cortex posteriorly. A "window" was removed and the whole contents of the lesion were curetted out. The material was soft and friable, reddish-brown in colour with yellow flecks (Figs. 6 and 7). The cavity was packed with bone chips.

Histological examination showed a cellular connective tissue with plump, spindle-shaped fibroblasts and rather numerous multinucleate giant-cells. No foam cells were found in this case. The central parts of the several loculi were richly cellular and well supplied with thin-walled capillary blood vessels. In this tissue there were numerous extravasated red cells, and the fibroblasts, but not the giant cells, gave a strongly positive Prussian blue reaction for free iron. Beneath the eroded cortex and bordering the thin bony septa which formed the walls of the loculi, the tissue was less cellular and more fibrous in character. There was no evidence of new bone formation within the lesion itself and the few trabeculae traversing the area consisted in the main of lamellar bone (Figs. 8 and 9).

Case 3—A boy aged seventeen experienced a sudden pain in his left arm while throwing a football. He had not felt any pain before in this arm and had no other symptoms. On examination there was an obvious deformity in the left arm.

Radiographs revealed an oblique fracture running through a multilocular, translucent area in the uppermost third of the humerus (Fig. 10). This lesion was oblong with the long axis in the long axis of

Fig. 10
Case 3—Fracture through multilocular "cyst."

Fig. 11
Case 3—Cellular area showing plump, spindle-shaped fibroblasts with rather numerous giant cells of typical appearance. (×100.)
Fig. 12
Case 3—A less cellular area showing interweaving bundles of fibrous connective tissue. (× 100.)

Fig. 13
Case 3—Dense accumulations of foam cells interspersed with strands of collagenous connective tissue. (× 100.)
the bone. It was surrounded by a thin sclerotic margin. A diagnosis of fracture through a simple bone cyst was made on the radiographic evidence. The arm was at first immobilised, but operation was later performed.

Operation—Anterior approach. The cortex forming the anterior wall of the humerus at the level of the lesion was bulging slightly and when opened was found to be thin. The "cyst" contained solid yellowish tissue of a rubbery consistency. This was removed, the wall was carbolised and the cavity packed with iilac bone chips.

Histological examination showed fibroblastic tissue of varying degrees of cellularity, in which scattered multinucleate giant cells and collections of lipoid-filled phagocytes were present (Figs. 11 to 13). New bone formation was not observed within this tissue, though normal callus was found in relation to the fractured cortex.

The histological appearances were at this time interpreted as those of fibrous dysplasia of bone, but, on review, the diagnosis was amended to "non-osteogenic fibroma of bone."

Progress—The patient made an uneventful convalescence and radiographs taken eight months later revealed that the fracture had united and, in the cystic area, there was incorporation of the bone grafts.

Case 4—A youth aged nineteen complained of having had pain in the right knee for two months. There was no history of injury. On examination slight tenderness and swelling were found over the right tibial tuberosity, and there was slight tenderness over the lower end of the femur, but no swelling. Knee movements were full. A diagnosis of Osgood-Schlatter's disease was made.

Radiographs revealed a multilocular swelling in the lower end of the right femur on the outer side, encroaching upon, but not expanding, the cortex. The lesion itself was fairly dense and it had a sclerotic inner margin (Fig. 14). No further abnormalities were seen in a skeletal survey.

Operation—Postero-lateral approach. The cortex was thick and no distinct cavity was present. Within the dense bone were two or three small orange-yellow foci, each about two millimetres in diameter.

Histological examination of the excised window of the cortex showed several small loculi towards the inner aspect, each occupied by rather cellular connective tissue having a whorled pattern (Fig. 15). Multinucleate giant cells were absent, but there were conspicuous clusters of foamy macrophages. The loculi were enclosed by compact bone, mostly of lamellar type, though some woven bone was present on the inner aspect of the bony shell (Fig. 16).
FIG. 15
Case 4—Small groups of foam cells in whorled fibrous connective tissue. (x 70.)

FIG. 16
Case 4—Woven bone forming on inner aspect of cortex. (x 480.)
FIG. 17
Case 5—Initial radiograph. Fracture through "cyst."

FIG. 18
Case 5—After a year and a half.
Fig. 19
Case 5—After three years.

Fig. 20
Case 5—After four years.
Case 6—Defect in upper tibia of a boy aged four.

Case 6—Two years later the defect is not present.
Case 5—A boy aged fourteen years complained of pain after twisting his left ankle; he had not felt any pain previously. On examination the lower third of the leg was swollen and tender. Radiographs showed a fracture through a "cyst" in the lower end of the tibia on the lateral aspect (Fig. 17). The "cyst" was roughly oval, eccentrically placed in the bone three centimetres from the lower tibial epiphysis. The longer axis lay in the long axis of the tibia and was approximately four centimetres in length. It appeared to be multilocular and the overlying cortex was thin and "expanded." A fracture line ran obliquely through the "cyst" and there was minimal displacement.

He was treated in a walking plaster for eight weeks, and made an uneventful recovery. Biopsy was not performed. The lesion has not given rise to any further symptoms, but radiographs have been taken at intervals over the succeeding four years (Figs. 17 to 20). These show that the "cyst" has travelled away from the epiphysis with the growth of the bone and has moved outwards into and through the cortex. During the period of observation the lesion has not enlarged, but the edges have shown increasing sclerosis with accentuation of the septa between the loculi. In the final radiograph (Fig. 20) the outlines of the defect have become fainter.

Fig. 23
Case 7—Lesion in the tibia of a man aged twenty.

Case 6—A boy aged four complained of slight aching in the region of the left knee. On examination no physical signs were present, but radiographs revealed a small defect in the upper end of the tibia on the medial side. The pain subsided spontaneously and radiographs taken two years later revealed no trace of the lesion (Figs. 21 and 22).

Similar bony defects were incidental findings in four further patients in whom radiographs were taken after minor injuries. In none of these were there symptoms relating to the lesion and biopsy was not performed.

Case 7—A man aged twenty complained of pain in the middle of the right leg radiating to the dorsum of the foot. Apart from slight tenderness of the anterior tibial muscles there were no physical signs. Radiographs revealed a multilocular lesion in the postero-lateral part of the upper third of the right tibia (Fig. 23). This was not thought to be responsible for his symptoms, which soon subsided.

Case 8—A girl aged twelve fell and sustained a crack fracture of the patella. Radiographs showed, in addition to the fracture, a translucent lesion in the lower femur close to the medial cortex (Fig. 24). Biopsy was not performed. She made a satisfactory recovery and now has no symptoms.
Case 8—Lesion in the femur of a girl of twelve.

Case 9—Lesion in the tibia of a boy aged eleven.
Case 9—A boy aged eleven and a half years fell and sustained a contusion of his left knee. Radiographs revealed a translucent, eccentric and circumscribed lesion in the upper third of the tibia (Fig. 25). The distal part was denser than the proximal and even more dense than the surrounding normal bone. He made a rapid and uneventful recovery and biopsy was not performed.

Case 10—A man aged twenty-two twisted his left ankle. Radiographs revealed a multinuclear lesion in the lower third of the left tibia (Fig. 26). There was no previous history of pain. He made an uneventful recovery from his injury and biopsy was not performed.

Non-osteogenic fibroma of bone is seen mainly in older children and adolescents and only rarely after the age of thirty. Both sexes are affected. The lesion occurs near the end of a long bone, most frequently in the lower limb. The commonly recorded sites are: lower end of femur, both ends of tibia and fibula, upper end of humerus, and lower ends of radius and ulna. Sometimes more than one bone is affected.

Though pain or a pathological fracture may lead to the discovery of this condition, it is frequently symptomless and only found after radiographic examination for some other reason. The radiographic appearances of non-osteogenic fibroma are distinctive. It appears as a rather sharply defined, translucent area, usually giving an impression of loculation and commonly bordered by a narrow zone of increased density. Its long axis lies in the long axis of the bone and at times exceeds four centimetres. Even when the lesion is large it tends to be eccentric in the bone, "hugging the cortex," as Jaffe and Lichtenstein (1942) expressed it. In some instances the translucent area is seen to lie within the expanded cortex, over which periosteal new bone may have developed. Only in slender bones such as the fibula or ulna does it commonly extend across the whole width of the shaft. When first discovered, the defect is usually separated from the epiphysial cartilage by two centimetres or more of apparently normal bone.

At operation a thin-walled cavity is found, sometimes multilocular, though the loculated...
appearance in radiographs may be due to the persistence of bony spurs on the inner aspect of the eroded cortex. The cavity does not contain fluid but is filled with soft and semi-diffuent or firm and rubbery material, reddish-brown, yellow, or mottled in colour.

Histologically, the material is composed of connective tissue of varying cellularity. In the richly cellular areas small multinucleate giant cells are scattered among the spindle-shaped fibroblasts. There may also be groups of small round cells which Hatcher (1945) has described as lymphoblasts. This type of tissue is very vascular and in it may be found extravasated red cells and haemosiderin pigment which contribute to the reddish-brown colour of the lesion. Elsewhere the tissue is less vascular and more fibrous; giant cells are absent from these areas, but, between the interweaving bundles of collagen there are commonly seen groups of lipid-filled macrophages which impart a yellow colour to the fresh tissue. As Jaffe and Lichtenstein (1942) remarked, these “foam cells” are not always present, but apparently increase in number as the lesion matures and as the cellularity of the connective tissue and the number of giant cells diminish. The appearances are not uniform throughout, and in a single lesion it is common to find cellular tissue towards the centre and more mature fibrous tissue at the periphery. According to Jaffe and Lichtenstein (1942) new bone formation is not observed within this aberrant tissue, though reactive sclerosis may be seen at the perimeter and normal callus develops at the site of a pathological fracture.

**DISCUSSION**

The radiographic and pathological features of non-osteogenic fibroma of bone are so characteristic that it is reasonable to suppose that this lesion is a distinct entity with a uniformly good prognosis. Jaffe and Lichtenstein (1942) based their original account on ten cases. Since then reports in the literature have suggested that non-osteogenic fibroma is not rare. Lichtenstein (1952) described it as “one of the more common benign connective tissue tumours of bone” and other authors appear to hold similar views of its frequency (Coley 1949, Coley and Higinbotham 1953). Hatcher (1945) reported a series of forty-five cases, seventeen of which were confirmed by biopsy. In five of these more than one bone was affected. We have been able to find only one case report in the recent British literature (Farrow 1954).

Two reasons may be given to explain the belated recognition of non-osteogenic fibroma of bone. Firstly, the increasing use of diagnostic radiography has no doubt brought to light many clinically silent cases which would previously have passed unnoticed. Secondly, cases have previously been interpreted, sometimes on the radiographic and sometimes on the pathological appearances, as examples or variants of: 1) localised osteitis fibrosa (Geschickter and Copeland 1949); 2) fibrous dysplasia of bone (Schlumberger 1946); 3) simple bone cyst (Geschickter and Copeland 1949); 4) osteoclastoma (giant-cell tumour of bone) (Kolodny 1927 and others); 5) solitary xanthoma, or a localised expression of skeletal lipoid granulomatosis (Hand-Schüller-Christian disease) (Burman and Sinberg 1938 and others); 6) fibrous osteomyelitis (Phemister 1929); and 7) endosteal fibrosarcoma (cited by Coley 1949).

The term localised osteitis fibrosa has been used to embrace so many different conditions that it is now almost meaningless and its use should be dropped. The non-condition form of fibrous dysplasia of bone is one of the disorders formerly included under the heading localised osteitis fibrosa, and Schlumberger (1946) held that non-osteogenic fibroma of bone should be regarded as a variant of fibrous dysplasia. Few authors, however, share this opinion and it may be noted that the skeletal distribution, histology and behaviour of the two conditions show important differences. Non-osteogenic fibroma occurring centrally may well be mistaken for a bone cyst on the radiographic appearances. The correct diagnosis can only be made with certainty in such cases by exploration and biopsy. Though there are some differences in the skeletal distribution of the two conditions, it is possible that they may be related to one another. Undue emphasis on the presence of osteoclasts on the one hand and foam cells on the other has led to mistaken diagnoses of osteoclastoma and xanthoma in cases of non-osteogenic
fibroma of bone cited by Jaffe and Lichtenstein (1942). These authors believed that the so-called “xanthic” or “healing” varieties of osteoclastoma are really instances of non-osteogenic fibroma of bone. The inconstancy of foam cells in non-osteogenic fibroma is sufficient ground for rejecting the use of the term “xanthoma” to describe the lesion. Phemister’s (1929) conception of “chronic fibrous osteomyelitis” has long been refuted. Endosteal fibrosarcoma was the diagnosis made on histological grounds in a case of non-osteogenic fibroma mentioned by Coley (1949), in which unnecessary radiotherapy was given. The inclusion of cases of non-osteogenic fibroma of bone among other cases of a different nature makes tabulation of all the recorded cases difficult, but the distinctive radiographic and pathological features of this disease can be recognised in published illustrations which purport to show these other conditions. Thus Snapper (1949) gave an illustration of a typical radiograph of non-osteogenic fibroma under the heading of “lipid granuloma of bone.”

Several different views have been expressed on the nature of non-osteogenic fibroma of bone. Jaffe and Lichtenstein (1942) considered it to be a benign tumour arising from mature marrow connective tissue, and maintained that an essential feature of the growth was the complete absence of osseous metaplasia within the proliferating connective tissue. Lichtenstein (1952) upheld the view that this was a “genuine neoplasm,” mentioning, in support, the rapid growth of “a proved instance of non-osteogenic fibroma.” Hatcher (1945), on the other hand, contended that the lesion represents a local disturbance of bone growth originating at the epiphysial plate, and used the term “fibrous metaphysial defect” to describe it. Burrows (1950), among others, has adopted this name for the condition.

It may be argued that a benign tumour is, in any event, only a localised disturbance of growth of the tissue in which it arises. Certainly the difficulties of defining precisely what is meant by a benign tumour have become more and more apparent with the advance of knowledge. It is, however, widely accepted that true neoplastic growths seldom undergo spontaneous healing or dissolution, whereas such a course of events has been observed to take place in several instances of non-osteogenic fibroma of bone which have been followed by means of serial radiography, and there is other evidence to suggest that spontaneous disappearance of the lesion is a frequent outcome in this disease.

According to Hatcher (1945), “several modes of obliteration of the lesion have been observed.” 1) Small lesions in the metaphyses of young children may undergo rapid “reparative ossification.” 2) Lesions which persist longer and grow larger, as the epiphysial cartilage is carried away from them by longitudinal growth of the bone, tend to provoke sclerosis of the surrounding bone. If, as is commonly the case, the lesion is eccentric in position, remodelling and tubulation of the end of the growing bone will lead to a gradual extrusion of a small fibrous defect through the cortex and its final disappearance beneath the periosteum (Fig. 27). This process of extrusion is particularly likely to occur in sites where much remodelling of the end of the bone takes place during the growth period, such as the lower end of femur and upper end of tibia. When large defects are present in these situations, tubulation of the end of the growing bone is often imperfect. 3) In cases in which the lesion has not healed early, nor been completely extruded through the cortex of the bone, gradual obliteration of the focus may be observed by serial radiography (as in Case 5). The process may occupy several years, during the course of which the defect is seen to travel away from the epiphysys and its shadow to become less and less definite until finally it can no longer be distinguished. At

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**Fig. 27**

Diagram to show the extrusion of a fibrous metaphysial defect in the remodelling process.
times the site of the obliterated defect is marked by a shadow of greater density than the surrounding bone; at other times the normal architecture of the bone appears to have been completely restored. Only an exceptional case fails to show evidence of spontaneous healing by the time longitudinal bone growth is complete.

The difficulty in elucidating the behaviour of non-osteogenic fibroma of bone is that the surgical intervention necessary to procure histological confirmation of the diagnosis is likely to alter the outcome. Yet it may be objected that cases which have been diagnosed on the radiographic appearances alone and which have not been confirmed histologically may not be instances of non-osteogenic fibroma of bone. This objection may be met by two arguments. Firstly, biopsy of lesions showing precisely similar radiographic changes regularly shows the histological picture of non-osteogenic fibroma of bone. Secondly, the rarity of non-osteogenic fibroma in radiographs of adult bones indicates that the lesion must frequently disappear spontaneously before adulthood. If these fibrous metaphysial defects undergo spontaneous obliteration presumably osseous metaplasia must take place within the connective tissue of the lesion, or else the fibrous tissue comprising the defect slowly shrinks and is absorbed, while reactive new bone grows in from the periphery. Unfortunately we have no precise knowledge of the sequence of changes in this healing process. If there is a stage when the connective tissue of the lesion itself becomes ossified, then the term “non-osteogenic” in the sense implied by Jaffe and Lichtenstein (1942), becomes inappropriate, apart from the question as to whether it is indeed a fibroma. Schlumberger (1946), whose views have been mentioned above, stated that metaplastic new bone formation was present in three out of twelve cases of non-osteogenic fibroma of bone filed under that diagnosis at the United States Army Institute in Washington. On the other hand, from the small number of cases that we have studied histologically, we have gained the impression that new bone does not arise by metaplasia within the connective tissue of the lesion itself. Obliteration of the focus seems to result rather from a gradual encroachment upon the shrinking fibrous tissue of reactive bone derived from the margin of the lesion and the septa dividing the loculi. Some, at least, of the newly formed bone is at first woven in type and is later replaced by lamellar bone.

The term “fibrous metaphysial defect” implies an origin in the metaphysis during the longitudinal growth phase of the bone and there is evidence to suggest that such defects may arise at any time during this period, though they most commonly do so at an early age. Santon and Pyle (1941), who made a study of skeletal growth in 200 children by serial skeletal radiographs, found a surprisingly high incidence of “cyst-like areas” in the distal femoral metaphysis and particularly on the medial side. The “cysts” were often bilateral. None of these lesions gave rise to symptoms and none was biopsied, but their appearances, in the radiographs illustrated, are very similar to those of small fibrous metaphysial defects. The “cyst” was usually round, or oval, occasionally “sacculated” and sometimes surrounded by bone of increased density. The average age of the children at the time of appearance of these lesions was forty-six months and the lesion persisted for an average of twenty-nine months, gradually travelling away from the epiphysial cartilage with the growth of the bone. A few of the “cysts” were still present up to the age of nine or ten years, but all eventually disappeared spontaneously. It is possible to make a rough estimate of the duration of a fibrous defect by the distance which separates it from the epiphysial plate, if it be assumed that this represents its point of origin. A remarkable case was recorded by Ponseti and Friedman (1949) of a boy who first came under observation at the age of two years on account of scoliosis. The initial radiographs included the humeri, in one of which a small metaphysial defect was noted close to the upper epiphysial. By the age of five this had grown larger, travelled away from the epiphysis and had become indistinct, but a second defect was already apparent in the same region of the metaphysis where the first had begun. This followed a similar course till it disappeared by the age of nine years, when a third and final lesion developed. This, in turn, travelled down the shaft and had disappeared by the age of thirteen.

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These observations on young children suggest that fibrous metaphyseal defects may arise in early life, but heal readily at this period. The cases which have been reported as non-osteogenic fibroma of bone come mostly from older children, though it seems probable that these are not fundamentally different from the lesions observed radiographically in infants and young children. As already remarked, non-osteogenic fibroma of bone is uncommon in adults. We have seen the radiograph and biopsy section of an adult of forty-two (Jaffe 1953) in whom the lower end of the radius was expanded by a bulky tumour which simulated an osteoclastoma, though the histological appearances were typical of non-osteogenic fibroma of bone. In view of the juxta-articular situation of this defect it is reasonable to assume that it must have arisen at or after the time of skeletal maturation; in this case the bone showed no tendency to undergo spontaneous healing.

The etiology of fibrous metaphyseal defects is unknown. It is evident from their distribution that they arise most commonly in connection with the most actively growing epiphyseal cartilages in the body, and the eccentric situation of most lesions suggests an origin from the peripheral part of the epiphyseal plate. Hatcher (1945) found concomitant epiphyseal disorders in no less than fourteen of his forty-five cases. These comprised eight cases of Osgood-Schlatter's disease, four cases of osteochondritis dissecans and two cases of "osteochondritis" of the patella. He postulated a vascular disturbance as the underlying cause of both the metaphyseal and epiphyseal disorders. In one of our ten cases (Case 4) a metaphyseal defect in the lower femur was associated with Osgood-Schlatter's disease on the same side. Among other recorded cases, only that of Burman and Sinberg (1938) was accompanied by Osgood-Schlatter's disease. The lesion was an incidental radiographic finding in the lower end of the femur of a boy of twelve whose complaint was pain over the tibial tuberosity. We have examined the radiographs of twenty consecutive cases of Osgood-Schlatter's disease and not found any fibrous metaphyseal defect. The case of Ponseti and Friedman (1949) quoted above, in which multiple defects appeared to arise from the same point in the epiphyseal plate, might be taken to favour some such mechanism as a local vascular disturbance of the growth cartilage. Certain of the histological features are indicative of repeated haemorrhage (extravasated red cells, haemosiderin pigment and lipoid-filled macrophages), and the tissue reaction has these features in common with the "sclerosing angioma" of soft tissues. It is perfectly clear that the lesion is not merely an organising haematoma. In spite of the rapid enlargement of such lesions, which has occasionally been observed, we do not believe that there is sufficient evidence for regarding the disorder as a neoplasm, and we suggest that the term "fibrous metaphyseal defect" is therefore more appropriate than "non-osteogenic fibroma of bone." Furthermore, rare cases of non-bone-forming, endosteal fibromas have been described (Cappell 1935, Geschickter and Copeland 1949) and these have little in common with the lesion under discussion. There is no recorded instance of malignant change supervening in a fibrous metaphyseal defect. Several authors, however, have reported the incidental discovery of these defects in radiographs which also show osteogenic sarcomata (Katz and Marek 1950, Lichtenstein 1952).

From the above observations it follows that no specific treatment is required if the radiographic appearances are sufficiently characteristic to establish the diagnosis, and if there are no complications. Where doubt exists, where the lesion involves the whole width of the bone, or where there is a pathological fracture, exploration and packing with bone chips may be necessary and should expedite healing.

**SUMMARY**

1. Ten cases are recorded of the entity known as non-osteogenic fibroma of bone.
2. We believe the evidence is in favour of the condition's being a localised disturbance of bone growth (metaphyseal fibrous defect) rather than a true neoplasm.
3. The disorder usually pursues a symptomless course and in many instances the lesion disappears spontaneously.
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