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RESEARCH ARTICLE

METACARPAL ANEURYSMAL BONE CYST, A RARE LOCALIZATION IN CHILDREN: ABOUT A CASE

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Abstract

An aneurysmal bone cyst (ABC) is a benign lesion that often arises eccentrically from the metaphysis of long bones and which can expand bone tissue as it grows. It is a rare lesion, frequently appearing in the long bones of the lower limb. Localizations on the hands and feet are rarer and often limited to tubular bones.We report the case of a 2-years-old girl initially admitted for a hard dorsal immobile and slightly painful swelling of the 5th metacarpal of the left hand, which didn't limit the metacarpo-phalyngeal joint mobility and which was evolving since 4 months. The standard hand x ray and CT-Scan showed a central lytic multiseptatedmetaphyseal-diaphyseal lesion, with a well-defined appearance, expansile but without extending beyond the cortices. The biopsy confirmed the diagnosis of an aneurysmal cyst that was surgically curetted then auto-grafted.A follow-up of 1 year showed a filling of the cystic cavity and bone remodeling which resulted in an almost normal clinical appearance of the patient's hand.A metacarpal location of an ABC is rare. The performance of a biopsy is fundamental to confirm the diagnosis before that any treatment is undertaken.

Introduction:-

An aneurysmal bone cyst (ABC) is a rare tumor that accounts for 1 to 2% of all primary bone tumors and is usually found in the long bones of the lower limb [1].ABC locations at the hand or the foot are rarer and represent less than 5% of all ABCs. It is a locally aggressive benign lesion which often arises eccentrically from the metaphysis of long bones and can sometimes expand the bone making it difficult to distinguish from a malignant tumor [2].We report the case of a2-years-old girl's ABC with an unconventional location in the 5thmetacarpe of the left hand.

Case report:

Our case is about a 2-years-old girl who consulted for local hard swelling on the dorsal of the medial edge of the left hand evolving since 4 months. There was no context of trauma preceding the appearance of the symptom.On physical examination, the swelling was firm and immobile, slightly painful on palpation but not restricting the fifth metacarpophalangeal joint range of motion. The skin was normal in appearance, without signs of inflammation or collateral venous circulation.Radiographic examination of the hand showed a central multi-septated lytic metaphyseal-diaphyseal image with well-defined contours and not extending beyond the cortices (Figure 1).The CT scan showed an osteolyticexpansile mass measuring 18 x 21 x 18mm involving the 5th metacarpal bone without invasion of the soft parts and without cartilaginous matrix (Figure 2).The diagnostic of ABC was suspected and a biopsy was performed showing stalls with non-coagulated blood content and delimited internally by a flattened epithelium. The interstitial tissue is abundant and rich in fibroblastic cells compatible with an ABC.The treatment

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consisted in a curettage of the cystic cavity and a cancellous bone autograft taken from the iliac without osteosynthesis (figure3).The post-operative follow up was without complications. The 6 and 12 month postoperative radiological appearance of the lesion showed good filling of the cystic cavity with new onset bone remodeling and an almost normal clinical appearance (Figure 4).

Figures:

Figure 1:- Radiography of the hand showing a central multi-septated lytic metaphyseal-diaphyseal image with well-defined contours and not extending beyond the cortices.

Figure 2:- CT-scan: osteolyticexpansile mass of the 5th metacarpal bone without invasion of the soft parts and without cartilaginous matrix.

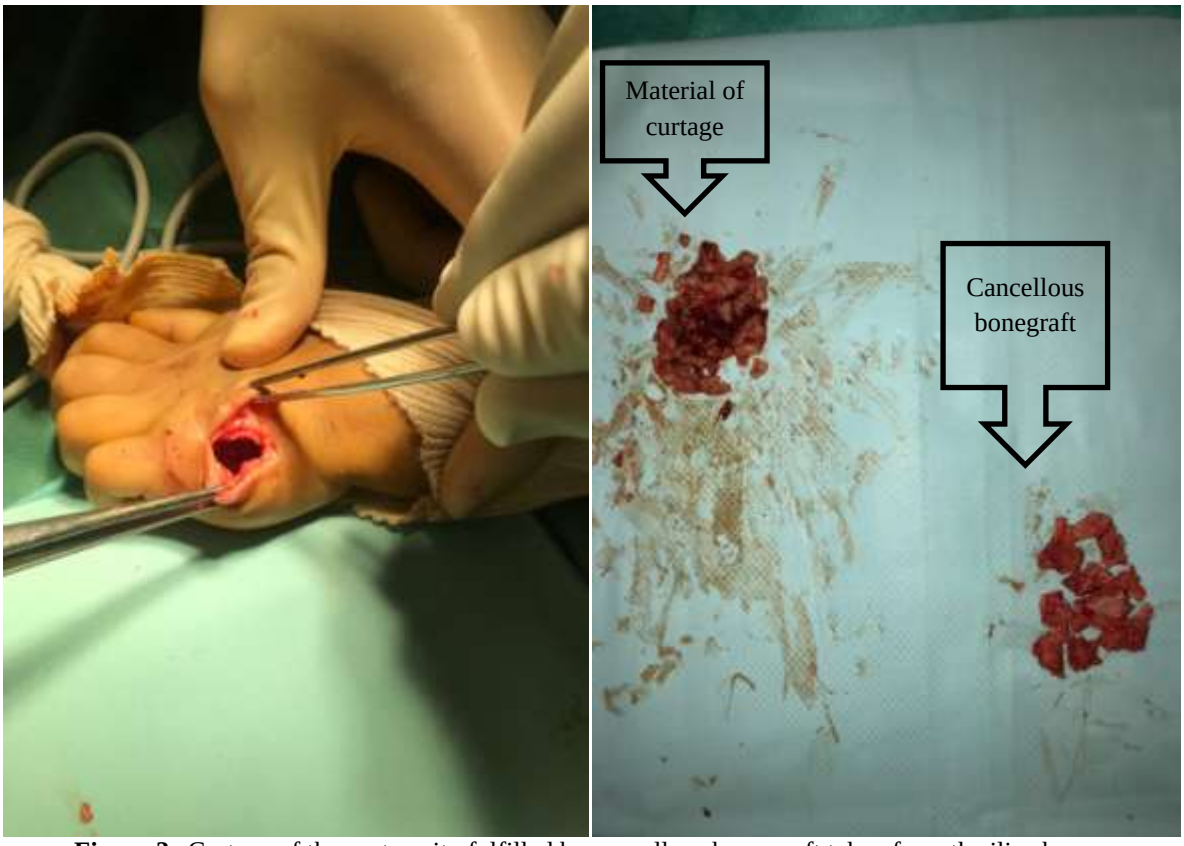

Figure 3:-Curtage of the cyst cavity fulfilled by cancellous bone graft taken from the iliac bone.

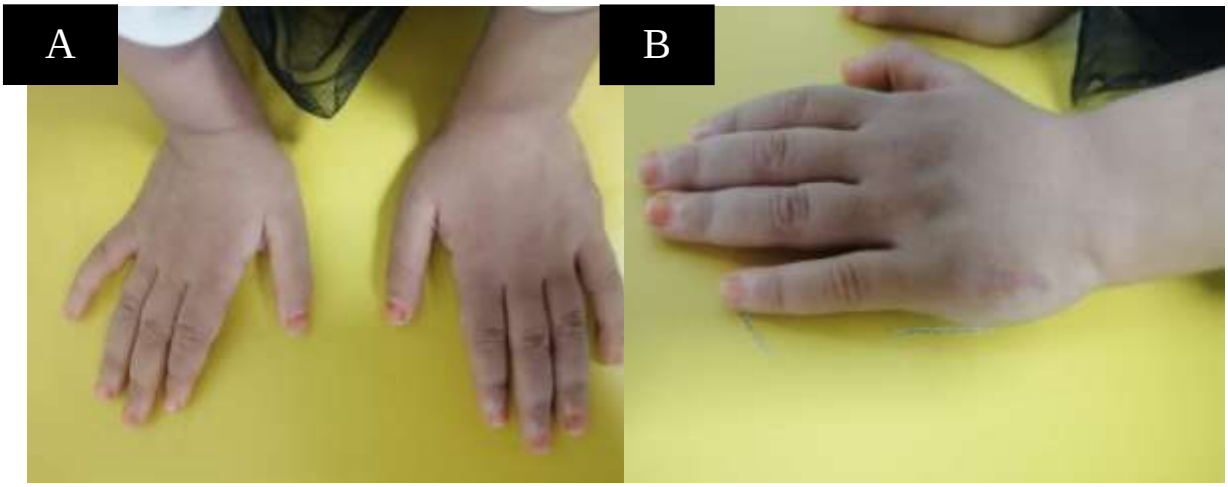

Figure 4:- Clinical aspect of hand after 6 months (A) and 12 months (B)Radiological appearance with remodeling (C).

Discussion:-

ABC can occur at any age but appear especially during the first two decades of life with a slight female predominance.Less than 10% of all ABCs appear in children under the age of 5 [3].ABCs of the hands and feet are rare and often limited to tubular bone. They represent between 3 and 5% of all skeletal locations and preferably appear in the distal metaphysis of the second or third metacarpal bones. [4-8].Clinically, ABCs are manifested by a swelling evolving on average for 4 to 12 weeks [8]. More rarely they can manifest as pathological fractures.On x-ray, the aspect of ABCs of the tubular bones of the hand is similar to that of the long bones of the skeleton. They appear as multilobulatedexpansilemetaphyso-diaphyseal lesions, sometimes eccentric, without any cartilaginous deposit. Sometimes they appear as blowing cortical erosions which raises the suspiscion for malignant lesions. CT-scan and MRI serve to determine the limits and contours of the lesion as well as to highlight any cortical bone destruction. The distinction between ABCs and essential bone cysts can be delicate to make since both lesions affect the same child population, manifest in the same locations, and can have a similar appearance on imaging. What's more both lesions can be associated.Telangiectatic osteosarcoma can also mimic an ABC, hence the benefit of systematically performing a biopsy to confirm the diagnosis [9, 10].Surgical curettage is an essential part of the treatment and can lead to good results on its own. Nevertheless it's association with a bone autograft is preferable ensuring adequate filling of the excised or cureted lesion and therefore better mechanical resistance of the treated bone [8].

Conclusion:-

Metacarpal ABC are rare and sometimes aggressive but often have good evolution when the treatment combines surgical curettage and autologous bone grafting. The biopsy is a reliable and essential for correct and sure diagnosis; and should be systematically performed in the context of this painful and rapidly evolving lytic lesion.

Conflict of interest:

No conflict of interest to declare.

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