

Case Report

Aneurysmal bone cyst in proximal phalanx treated without bone grafting

Palanisami R. S.*, Srinivasan Rajappa, Raghavendran

Department of Orthopaedics, Sri Ramachandra Institute of Higher Education and Research, Chennai, Tamil Nadu, India

Received: 12 March 2020

Revised: 04 April 2020

Accepted: 06 April 2020

***Correspondence:**

Dr. Palanisami R. S.,

E-mail: palans.3392@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Aneurysmal bone cyst involving the hand are a rare occurrence especially in the proximal phalanx. We report a case of 5 years old female child with proximal phalanx aneurysmal bone cyst treated without bone grafting. Magnetic resonance imaging may show fluid filled spaces but definite diagnosis can only be obtained histologically. It is a benign lesion still it can involve growth plate hence intervention is necessary. The treatment includes curettage with or without bone grafting.

Keywords: Aneurysmal bone cyst, Proximal phalanx, Bone grafting

INTRODUCTION

Aneurysmal bone cysts are benign bone lesions which were first described by Drs Jaffe and Lichenstein in 1942. It is a blood filled cavity with thin wall. The incidence of aneurysmal bone cysts in the hand is incredibly rare especially in the proximal phalanx, and only a handful of cases have been reported throughout the literature.¹⁻⁶ While considered benign, aneurysmal bone cysts can behave in a very aggressive manner affecting the growth plates in the immature bone. There is no evidence based-protocol for treatment, and controversy exists over the optimal treatment. We report a case of an aneurysmal bone cyst of proximal phalanx of ring finger in a 5 years old child.

CASE REPORT

This was report of 5 years old female child came with the complaints of swelling over left ring finger for three

months. The swelling was noted by the parents 3 months back but left unattended but for past three weeks the size of the swelling has progressed and was associated with pain. There was no history of trauma or fever. The child was well nourished. On physical examination fusiform swelling of ring finger just proximal to the proximal crease was seen and there was reduced flexion of the proximal interphalangeal joint. Plain radiograph of the ring finger shows an expansile osteolytic lesion involving almost entire bone just distal to the physal plate of the proximal phalanx. Furthermore, intralesional septations were also visualized. Magnetic resonance imaging (MRI) was not ordered considering the benign course of lesion with no neurovascular involvement and the nonaggressive radiographic features.⁷ Intraoperative finding was a blood filled space, a classic feature suggestive of aneurysmal bone cyst. The biopsy sent for histopathological examination confirmed the diagnosis of aneurysmal bone cyst. The five months follow up X-ray shows good healing.

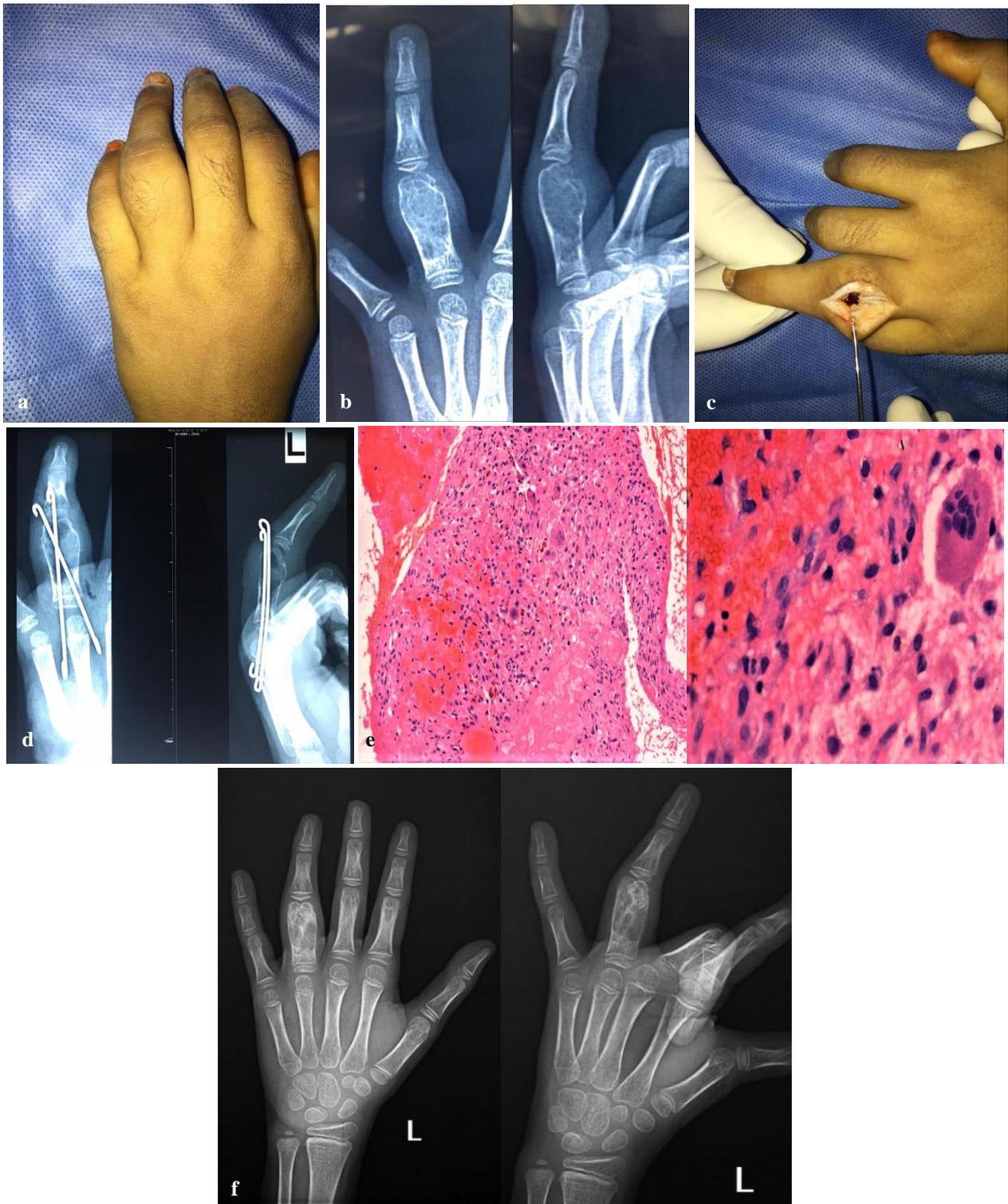


Figure 1: (a) Clinical picture, (b) preoperative X-ray, (c) intraoperative picture, (d) postoperative X-ray, (e) histopathology, (f) follow up X-ray 5 months.

DISCUSSION

The differential diagnosis for our patient included aneurysmal bone cyst, enchondroma, giant cell tumor, giant cell reparative granuloma.

Enchondroma is a benign intramedullary neoplasm made of well defined hyaline cartilage, encapsulated by fibrous tissue. It occurs commonly in 20-30 years. It occurs as single or multiple lesions associated with syndromes. Radiographically, enchondromas are well-circumscribed lesions with glandular, popcorn, ring like calcification.

Histologically, the lesion contains lobules of cartilage with areas of calcification. The chondrocytes are usually sparse with small, round, dense nuclei.⁸

Giant cell reparative granuloma (GCRG) is an uncommon benign reactive intraosseous reparative lesion predominantly encountered in the skull, mandible, and facial bones, and also in the short tubular bones of the hands and feet.⁹ It is a solitary, lytic, expansile lesion. As with an aneurysmal bone cyst, it most likely represents a response to traumatic intraosseous hemorrhage, and histologically, the solid variant of an aneurysmal bone cyst and GCRG are indistinguishable, both lacking the vascular lakes of a classic aneurysmal bone cyst. Serum calcium, phosphorous and parathyroid hormones level should be measured Treatment is curettage and bone graft and recurrence are rare.¹⁰

A giant cell tumor is a common bone tumour with variable growth potential. Most giant cell tumours (GCTs) occur between 20-40 years of age. It is an eccentric, metaphyseal, radiolucent lesion with a geographic margin that abuts subchondral bone. The most common locations are the distal femur, proximal tibia, and distal radius and only 2 percent have been reported in hand. Recurrence is more common in hand comparing to other sites. Although a giant cell tumor is a benign lesion, 2 to 6% of patients have pulmonary metastasis.¹¹ Grossly, GCT will be brown in colour, solid, with areas of necrosis and hemorrhage. Treatment is intralesional or marginal to wide excision with or without bone grafting. The histologic appearance of a giant cell tumor includes multinucleated giant cells with nuclei that are identical to the nuclei of the surrounding stromal cells. Histologic examination excluded a giant cell tumor as the diagnosis in our patient.

An osteoblastoma is a rare benign tumor of osteoblasts producing osteoid and woven bone. The common locations are the proximal tibia and the posterior elements of the spine, but solitary and multifocal osteoblastomas have been reported in the hand.¹² Radiographic appearance is variable, but usually consists of an expansile well-circumscribed lytic lesion with rind of sclerosis with an areas of periosteal reaction, if there has been breach of cortex. Occasionally the lesion may have features of aneurysmal bone cyst due to rapid expansion. Microscopically, an osteoblastoma is characterized by a cellular, highly vascularized stroma of immature bone surrounded by osteoblasts.¹³

CONCLUSION

Aneurysmal bone cyst (ABC) is a rare cystic, expansile, solitary vascular bone lesion. ABC very rarely occurs in the fingers. It is a benign lesion still it can involve growth plate hence intervention is necessary. MRI may demonstrate the pathognomonic fluid-fluid levels exquisitely but doesn't cause a significant change in the

treatment plan. A definite diagnosis can only be obtained histologically. The treatment includes curettage with or without bone grafting.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Jaffe HL. Solitary unicameral bone cyst. Arch Surg. 1942;44(6):1004-25.
2. Ozyurek S, Rodop O, Kose O, Cilli F, Mahirogullari M. Aneurysmal Bone Cyst of the Fifth Metacarpal. Orthopedics. 2009;32:606-9.
3. Kotwal PP, Jayaswal A, Singh MK, Dave PK. Aneurysmal bone cyst in the metacarpal of a child: a case report. J Hand Surg Br. 1988;13:479-80.
4. Song KS, Lee SW, Bae KC, Sohn ES. Aneurysmal bone cyst involving the metacarpal bone in a child. Am J Orthop. 2015;44:68-70.
5. Ropars M, Kaila R, Briggs T, Cannon S. Kystes anévrismaux des phalanges et des métacarpiens. À propos de six cas et revue de la littérature. Chirurgie de la Main. 2007;26:214-7.
6. Borrelli J, McCormack RR. Aneurysmal bone cyst involving the long finger metacarpal in a child: a case report. YJHSU. 1994;19:800-2.
7. Diaz VA, Vernon SE, Ouellette EA. Pain and deformity of the index finger in a 41-year-old woman. Clin Orthop Relat Res. 2009;467(5):1387-91.
8. Weiner SD. Enchondroma and chondrosarcoma of bone: clinical, radiologic, and histologic differentiation. Instr Course Lect. 2004;53:645-9.
9. Oda Y, Tsuneyoshi M, Shinohara N. "Solid" variant of aneurysmal bone cyst (extragnathic giant cell reparative granuloma) in the axial skeleton and long bones: a study of its morphologic spectrum and distinction from allied giant cell lesions. Cancer. 1992;70:2642-9.
10. Ratner V, Dorfman HD. Giant-cell reparative granuloma of the hand and foot bones. Clin Orthop Relat Res. 1990;260:251-8.
11. Cheng JC, Johnston JO. Giant cell tumor of bone: prognosis and treatment of pulmonary metastases. Clin Orthop Relat Res. 1997;338:205-14.
12. Adler CP. Multifocal osteoblastoma of the hand. Skeletal Radiol. 2000;29:601-4.
13. Mirra JM, Picci P, Gold RH. Bone Tumors: Clinical, Radiologic, Pathologic Correlations. Philadelphia PA: Lea & Febiger; 1989.

Cite this article as: Palanisami RS, Rajappa S, Raghavendran. Aneurysmal bone cyst in proximal phalanx treated without bone grafting. Int J Res Orthop 2020;6:632-4.