



PERCUTANEOUS POLIDOCANOL INJECTION AS SCLEROTHERAPY IN TREATMENT OF ANEURYSMAL BONE CYST: A CASE SERIES OF 7 PATIENTS

Orthopedics

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ABSTRACT

Introduction: Sclerotherapy is an alternative method to surgery for the treatment of aneurysmal bone cyst. It is safe and simple procedure. **Aim:** The efficacy of percutaneous polidocanol injection as sclerotherapy in treatment of aneurysmal bone cyst. The efficacy was assessed by radiological ossification. **Materials and method:** Between 2022 to 2023, 7 patients (4 patients were male and 3 patients were female) with aneurysmal bone cyst treated by percutaneous injection of polidocanol-3%. All patients were given injection polidocanol under fluoroscopy guidance under short general anaesthesia. Ossification was assessed by x ray on follow up. Clinical assessment was done by decrease in pain. **Result:** Ossification was complete in 5 patients (71 %). 2 patients fail to response to sclerotherapy treatment, one case had undergone curratage and fibular grafting. Results were assessed by x ray and there was decrease in pain and swelling in all 5 cases. **Conclusion:** Sclerotherapy is a minimally invasive and effective treatment for ABC. It avoid the risk of surgery.

KEYWORDS

Sclerotherapy, Polidocanol, Aneurysmal bone cyst (ABC).

INTRODUCTION :

An aneurysmal bone cyst(ABC) is a benign tumour with lots of controversy regarding treatment and origin. Aneurysmal bone cysts (ABCs) were initially described by Jaffe and Lichtenstein in 1942. [1] ABC was described by the World Health Organisation (WHO) as "a benign cystic lesion of bone comprised of blood- filled voids divided by connective tissue septa containing fibroblasts, osteoclast- type giant cells, and reactive woven bone" [2-3]. An aneurysmal bone cyst is thought to typically present as an eccentrically positioned, lytic, expansile lesion in the metaphysis with cortical thinning and a subperiosteal thin shell of bone. [4-8]

The precise aetiology of ABC is unknown. However, the majority of studies think that a venous malformation or elevated pressure is the cause for ABC. Depending on the underlying lesion, ABC may be primary or secondary to various conditions such as osteoblastoma, osteosarcoma, fibrous dysplasia, etc. According to recent research, the t (16; 17) translocation, which results in the over expression of the TRE17/USP6 oncogene, is the cause of 69% of primary ABC. Secondary ABCs, however, do not account for genetic alterations [9-11]

It can be treated by curettage and bone grafting with approximately 20% - 25% recurrence rate [12]. A minimally invasive therapy is also performed percutaneously (sclerotherapy)

Many studies have shown that sclerotherapy is good and minimally invasive alternative method when it comes to treatment of aneurysmal bone cysts. One study showed complete ossification in the majority of its population and 94.7% were pain-free after 3 months [13]. Another study have shown that using a certain fibrosing agent (i.e doxycycline) in treatment of ABCs is associated with great healing response and a recurrence rate of 5% at more than 2 years [14]. A study showed excellent regression in the lesion's size in 94% of the chosen population [15]

AIMS AND OBJECTIVE :

The main objective of the study was to asses efficacy of percutaneous sclerotherapy in treatment of aneurysmal bone cyst by radiological assessment.

MATERIALS AND METHOD:

The present study was undertaken in the department of orthopaedics, Guwahati medical college and hospital, assam. Duration of study was from January 2022 to January 2023. Patients were selected from opd with diagnosis of ABC on x ray and MRI and clinically presenting with pain and swelling. A total of 7 patients were selected after diagnosis (4 male and 3 female). Patient party were explained about the procedure and the pros and cons of percutaneous sclerotherapy curratage and bone grafting. Consent were obtained for the procedure.

Procedure:

Patient was put on ot table, short general anaesthesia given, under fluoroscopic guidance location of cyst identified and under aseptic and antiseptic condition fluid was aspirated using 18 g needle. After fluid

aspiration 3% polidocanol was injected into the lesion at dose of 2-4 mg/ kg body weight. Routinely given 3 injection at interval of 4 weeks and pt were advice to avoid weight bearing if lesion is in lower limb and applied slab in case of impending pathological fracture. Radiological evaluation done by x ray on subsequent follow up and also clinically by assessing pain and swelling. Follow up done for every 4 weeks interval till radiological healing.

RESULT:

After a mean follow up of 1 year out of 7 patients 5 shows sign of radiological ossification and improvement in pain and swelling reduction clinically. In our study 2 patients did not response to sclerotherapy. They were managed by curratage and bone grafting. Minimum number of injection needed for ossification was 3. One patient receive maximum of 5 injection.



Fig-1: Abc Proximal Humerus At Presentation



Fig-2 Abc Proximal Humerus After Injection On Follows Up



Fig-3: Abc Proximal Humerus On Follow Up After Injection Showing Complete Ossification.



Fig 1: Abc Proximal Tibia At Presentation



Fig-2: Abc Proximal Tibia On Follow Up After Injection 3% Polidocanol



Fig- 3 Abc Proximal Tibia On Follow Up Showing Ossification After Polidocanol Injection

DISCUSSION:

ABC is a bone tumour with various treatment options. ABC can be treated in a number of ways, such as curettage with or without bone grafting, complete or partial excision with or without reconstruction, arterial embolisation, bone marrow injections, intralesional drug injections (steroid, calcitonin, or doxycycline), radiation therapy, denosumab injection, and sclerotherapy [16–24].

Sclerosants are irritating, directly harm the blood vessel's inner endothelial lining, and promote thrombotic blockage of blood vessels [18].

In their research on 72 ABC patients, Rastogi et al. reported a 97% success rate for sclerotherapy [18]. At the end of the treatment, which lasted an average of 11.4 months, he saw a clinical response of 75%, and this response got even better at the ultimate follow-up, which lasted an average of 34 months.

In a series of 38 ABC patients who received sequential sclerotherapy, Otte et al. reported a 97% efficacy [25].

Varshney et al 2010-Sclerotherapy more effective than surgery.

In our study 7 patients with ABC has been treated with percutaneous Sclerosant therapy under fluoroscopy guidance. Complete ossification has been assessed by radiological x ray and clinical feature of reduction in pain and swelling on subsequent follow up. Out of 7 patients we have seen ossification in 5 patients (71 %), 2 patients did not improve, out of them 1 patient had undergone curettage and fibular bone grafting.

CONCLUSION:

Percutaneous sclerotherapy is simple, effective and minimally invasive procedure for treatment of aneurysmal bone cyst. the use of 3 % polidocanol avoid the risk of conventional surgical technique.

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