EXTENDED INTRALESIONAL EXCISION IN GCT OF DISTAL END OF RADIUS- A PROSPECTIVE STUDY

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ABSTRACT

BACKGROUND
Recurrence is a common problem in GCT. A treatment modality without sacrificing the joint function and without compromising the tumour clearance is the necessity.

MATERIALS AND METHODS
Distal end radius GCTs treated by extended intralesional excision, filled by bone cement, morselized bone graft and Gelfoam, followed up for a period of 4 yrs.

RESULTS
7 cases- 6M, 1F of distal end radius GCTs. No recurrence after 4 yrs. in all the cases.

CONCLUSION
Extended intralesional excision is an excellent treatment modality of GCT of the distal radius.

KEYWORDS
GCT, Extended Intralesional Excision, Methyl Methacrylate, Morselized Bone Graft, Gelfoam.

The cases were followed up for a maximum period of 4yrs clinically, biochemically (serum tartrate resistant acid phosphatase 6) and radiologically.

Bisphosphonate (ibandronate 150mg once monthly) was given as adjuvant chemotherapy in all the 7 cases.

Inclusion Criteria
GCTs of the distal radius admitted at Government Medical College, Thrissur, during 2010-12 treated by extended curettage filled by methyl methacrylate (bone cement) separated from the subarticular bone by morselized bone graft and Gelfoam were included in the study.

Exclusion Criteria
GCTs of the other bones, GCTs of the distal radius treated by other methods and GCTs admitted outside the prescribed period were excluded from the study. The different modalities of treatment of GCT are intralesional curettage and bone grafting, extended intralesional curettage, marginal/wide excision and reconstruction using fibular grafting, excision and arthrodesis, local radiotherapy and chemotherapy, embolisation, etc.

RESULTS
No recurrence was noted in any of our 7 cases of GCTs during the 4 yrs. follow-up period. None of the cases reported a serial increase in the serum tartrate resistant acid phosphatase levels. All the 7 patients were given bisphosphonates (ibandronate 150 mg once monthly) as prophylaxis for recurrence. The recurrence was assessed clinically by increase in swelling, pain and functional disturbance. The recurrence was assessed radiologically by lysis or failed development of the sclerotic rim between the cement mantle and the cancellous bone; peripheral calcification in the soft tissue. The recurrence was assessed biochemically by serial measurement of serum tartrate resistant acid phosphatase levels.

DISCUSSION
Extended Intralesional Excision of GCT
Giant cell tumour is one of the most common bone tumours encountered in orthopaedics. The different modalities of treatment of GCT are intralesional curettage and bone grafting, extended intralesional curettage, marginal/wide excision and reconstruction using fibular grafting, excision and arthrodesis, local radiotherapy and chemotherapy, embolisation, etc. Extended intralesional excision (curettage) is currently considered to be the most effective modality of treatment of GCT. In this method, the conventional intralesional curettage is augmented by physical and chemical methods. Use of a high speed burr to break the bony ridges and extend the curettage is useful. The chemical cauterising agents like phenol (5-50%), hydrogen peroxide, etc. are used as adjuvants to reduce the local recurrence. Methyl methacrylate (bone cement) is used as an effective material to fill the cavity after curettage. The hyperthermia produced by the bone cement is found to induce thermal necrosis of the neoplastic tissue. But, this may also damage the articular cartilage and cause late articular degeneration. To prevent this, in cases where the amount of subchondral bone after curettage is less than 1 cm, a barrier layer of Gelfoam combined with morselized bone graft (allo and autograft) is kept when bone cement is used (sandwich technique). This will also protect the articular cartilage if bone cement is to be removed in case of local recurrence of the tumour.

Role of Bisphosphonates
Bisphosphonates induce apoptosis of the giant cells. By this action, they are useful to prevent recurrence of giant cell tumours after surgical excision. Recently, they also found to have a role in the treatment of large unresectable GCTs as an adjunctive modality.

Role of Serum Levels of the Enzyme Tartrate Resistant Acid Phosphatase
Serum tartrate resistant acid phosphatase have recently come up as a tumour marker for GCT. The serial estimations of this particular enzyme have been found to have a key role in the early detection of the recurrence of the GCT after surgical treatment.

Our Study
A prospective study of distal end radius GCTs admitted at Government Medical College, Thrissur, Kerala, during 2010-12. The giant cell tumour was diagnosed on the basis of clinical examination and x-rays. MRI scan was not done because the clinical and radiological diagnosis was definitive.

Total number of cases = 7, 6 male patients and 1 female patient.

5 cases on the (L) wrist, 2 cases on the (R) wrist.

All cases were of Enneking stage 2.

4 cases were Campanacci grade 2, 3 cases were Campanacci grade 3.

Extended curettage, hydrogen peroxide cauterisation, Gelfoam, morselized bone grafting (iliac crest), bone cementation (sandwich technique) was done in all cases.

The cases were followed up for a maximum period of 4yrs. clinically, biochemically (serum tartrate resistant acid phosphatase) and radiologically.

Bisphosphonate (ibandronate 150 mg once monthly) was given as adjuvant chemotherapy in all the 7 cases.

No recurrence was noted in any of our 7 cases of GCTs during the 4 yrs. follow-up period. None of the cases reported a serial increase in the serum tartrate resistant acid phosphatase levels during this period and there were also no clinical or radiological features suggestive of recurrence.

CONCLUSION
Extended intralesional excision is one of the most effective methods of treatment of giant cell tumour of the distal end of the radius with respect to tumour clearance, restoration of joint function and prevention of tumour recurrence.

Use of bisphosphonates is definitely useful as a prophylactic measure of tumour recurrence in the management of GCT of distal end of radius. Serum tartrate
resistant acid phosphatase is a useful tumour marker for giant cell tumour of distal end of radius.

REFERENCES