Osteoid Osteoma in the Base of the Coracoid Process of the Scapula

Excision by Anterior Approach: A Case Report

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Abstract

Osteoid osteoma in the base of the coracoid process of the scapula is very rare and diagnosis and treatment often is delayed. A lesion in this atypical location may seem surgically unreachable. This report is of a case of osteoid osteoma in the base of coracoid process in a 14-year-old female. The lesion had been diagnosed as a nontumorous condition and overlooked for four years. Computed tomography and magnetic resonance imaging revealed a nidus in the base of the coracoid process. The en bloc excision of the osteoid osteoma was managed by an anterior approach using an osteotomy of the coracoid process. A 12-month follow-up examination revealed no symptoms and computed tomography showed bone healing with no recurrence of the tumor.

Osteoid osteoma is a benign osteoblastic lesion consisting of a small oval or round mass commonly called a nidus. It usually occurs in the adolescents. Pain classically occurs at night and is frequently relieved by salicylates.

More than half of osteoid osteomas occur in the femur and the tibia. Scapular involvement by osteoid osteoma is relatively uncommon.1-4 Mosheiff and associates5 found 12 cases of scapular osteoid osteomas among 1,236 cases in the literature. The en bloc excision of the osteoid osteoma in this unusual location may be technically demanding. To our knowledge, this is the first case in the literature of osteoid osteoma involving the base of coracoid process excised through an anterior approach.

Case Report

A 14-year-old female reported a four-year history of persistent right shoulder pain of gradually progressive severity. The anterior shoulder pain occurred especially at night. She had been treated as if she had arthritis.

Physical examination revealed anterior shoulder tenderness and pain and a limitation in external rotation. The patient’s complete blood count, erythrocyte sedimentation rate, and serum chemistry studies were all normal. Plain shoulder radiographs did not detect any abnormality. Computed tomography (CT) scan revealed a subcortical nidus in the base of the coracoid process. The en bloc excision was performed through an anterior approach using an osteotomy of the coracoid process. A 12-month follow-up examination revealed no symptoms and computed tomography showed bone healing with no recurrence of the tumor.

Figure 1 Axial CT scan reveals subcortical nidus in the base of the coracoid process.
Histologically, the specimen consisted of an interlacing network of osteoid and bony trabeculae having a variable amount of mineralization, compatible with the nidus of an osteoid osteoma.

Shortly after the excision of the tumor, the patient had complete relief of pain. Examination 12 months postoperatively revealed no pain and full range of motion. Plain film radiographs and the CT scan demonstrated union of the coracoid process with no recurrence of the tumor (Figs. 3 and 4).

Discussion

A tumor in the base of the coracoid process easily may be overlooked because it mimics other non-tumorous diseases of the shoulder that cause anterior shoulder pain, such as instability, impingement syndrome, and frozen shoulder. For four years the patient in this report had been treated as if she had arthritis.

The diagnosis may be missed on plain film radiographs since they may not show a lesion in the coracoid process clearly. An axillary view radiograph better shows the coracoid process and may be more helpful in identifying a lesion in its base. Computed tomography and MR imaging are more sensitive and therefore preferable for diagnosis. On the CT scan, thin sections may be necessary to identify the nidus. Magnetic resonance imaging, generally, is considered less useful than CT in the detection of the nidus but it is helpful in distinguishing osteoid osteoma from malignant tumors or osteomyelitis. Occasionally, extensive marrow edema, synovitis, and joint effusion may accompany osteoid osteoma and MR imaging may be used to demonstrate these findings. A bone scan using Technetium-99 is specific but not sensitive.

Ogose and associates\(^6\) reported on 18 cases of bone tumors of the coracoid process of the scapula, only two of which were osteoid osteomas. Kaempfe\(^4\) reported a...
case of osteoid osteoma involving the base of the coracoid process that was excised by the posterior approach. He stated that the base of the coracoid process was a relatively inaccessible area, which could not be approached anteriorly. We approached the base of the coracoid process anteriorly by a meticulous osteotomy of the coracoid process. Following wide marginal excision of the nidus, we reattached the coracoid process to its base by a malleolar screw.

**Conclusion**

The diagnosis of osteoid osteoma involving the base of the coracoid process is essential and should be considered in the patient with persistent shoulder pain unresponsive to selective treatment. Surgical excision of the tumor by an anterior approach is an easy and reliable method of treatment.

**References**


**Figure 4** Axial CT scan demonstrates complete healing of the lesion 12 months postoperatively.