

Case Report

Sternoclavicular Steroid Injection for Treatment of Pain in a Patient with Osteitis Condensans of the Clavicle

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Osteitis condensans of the sternoclavicular joint was first described by Brower et al in 1974. It is a rare benign disorder primarily affecting women of child-bearing age. Persistent pain and swelling in the medial part of the clavicle are the most common presenting symptoms and may represent an inflammatory process in the joint among other proposed etiologies. Radiological findings include sclerosis of the medial part of the clavicle and a normal sternoclavicular joint. Diagnosis is usually confirmed by biopsy.

Pain management can be challenging in these patients. Multiple treatments have been described in the past including oral NSAIDs, physical therapy, radiation, surgical resection, and oral corticosteroids but have met with limited success.

This case report describes the novel utility of sternoclavicular joint steroid injections in treating a patient with Osteitis condensans of the clavicle after failed medical therapy.

Based on our clinical experience, and given the limited clinical success of other reported conservative treatment measures, a sternoclavicular joint injection under fluoroscopic guidance using a local anesthetic-corticosteroid injectate should be considered as a viable treatment option for pain associated with Osteitis condensans of the clavicle.

Key words: Osteitis condensans, sternoclavicular joint disorders, sclerosis of clavicle, shoulder pain, Osteitis condensans of clavicle, sclerosing osteitis

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Osteitis condensans of the sternoclavicular joint was first described by Brower et al (1) in 1974. It is a rare benign disorder primarily affecting women of child-bearing age. Persistent pain and swelling in the medial part of the clavicle are the most common presenting symptoms and may represent an inflammatory process in the joint among other proposed etiologies. Radiological findings include sclerosis of the medial part of the clavicle and a normal sternoclavicular joint. Diagnosis is usually confirmed by biopsy. Pain management can be challenging in these patients. Multiple treatments have been described in the past including oral NSAIDs, physical therapy, radiation,

surgical resection, and oral corticosteroids but have met with limited success. This case report describes the novel utility of sternoclavicular joint steroid injections in treating a patient with Osteitis condensans of the clavicle after failed medical therapy.

CASE REPORT

A 21-year-old female presented to our clinic with a 2-year history of persistent pain involving her left sternoclavicular joint. She reports that her pain condition was not associated with any systemic symptoms such as fever or chills. There was no reported inciting trauma or event triggering her pain condition. She

characterized her pain as constant and sharp with radiation to the left shoulder. It was aggravated by left shoulder movement and carrying objects with her left hand. She rated her pain up to a 7/10 on the verbal numeric rating scale of 0–10. The previous workup including various imaging studies culminated in a diagnosis of Osteitis condensans of the left clavicle. Medical treatment with non-steroidal anti-inflammatory medications and oral steroids failed to satisfactorily alleviate her pain. The patient underwent a bilateral breast reduction surgery in an attempt to alleviate her pain. This however did not result in any pain reduction. She was also evaluated by an orthopedic surgeon but was advised that there were no recommended surgical treatment options.

On physical examination, range of motion of her left shoulder was within normal limits but triggered pain in the left sternoclavicular joint region. Strength was 5/5 on manual muscle testing in the major muscle groups of the upper extremities. Deep tendon reflexes were intact and symmetric in the upper extremities. Significant tenderness was elicited by palpation of the left sternoclavicular joint region overlying the medial clavicle. There were no

obvious signs of swelling, erythema, calor, or allodynia at the joint area.

On T2-weighted magnetic resonance imaging, a bright signal compatible with bone marrow edema in the inferior-medial portion of the left clavicle was reported (Fig.1). There were no definite masses or fluid collections. A CT scan of the chest revealed increased sclerosis in the medial head of the clavicle.

The patient was offered a sternoclavicular joint steroid injection under fluoroscopic guidance in order to help decrease her pain and improve her level of functioning. The risks of the procedure including bleeding, infection, treatment failure, and possibility of pneumothorax were reviewed.

After informed consent was obtained, the patient was taken to the procedure room and placed in supine position. A shoulder roll was placed and the headrest was removed to produce mild extension of the thoracic spine and the cervical spine respectively. Her left arm was then abducted and the shoulder slightly externally rotated. The anatomic landmarks for the left sternoclavicular joint were then determined with the aid of palpation and fluoroscopy in the AP view. The skin was prepped and draped in the usual sterile fashion. A 22-gauge 3½-inch needle was then directed with the aid of fluoroscopy in the AP view into the left SC joint (Fig. 2). Approximately 0.5 mL of Omnipaque

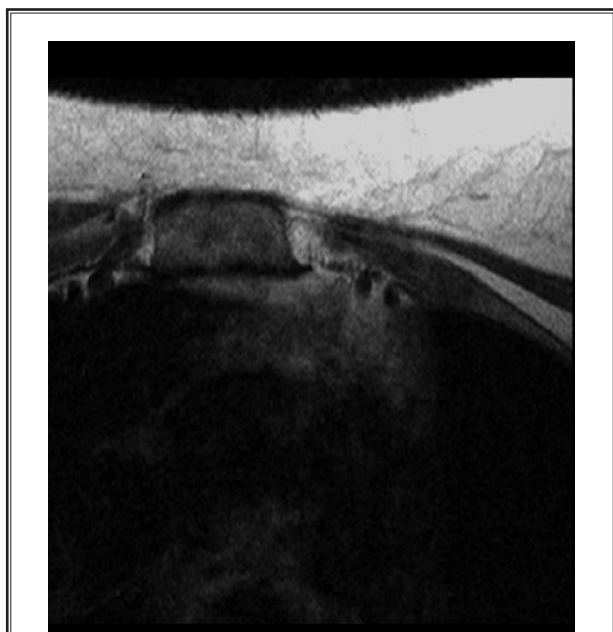


Fig. 1. T2-weighted MRI shows bright signal compatible with bone marrow edema in the inferior-medial portion of the left clavicle.



Fig. 2. AP view of 22-gauge 3½-inch needle being directed with the aid of fluoroscopy into the left SC joint.

Isovue-M 200 contrast was slowly injected. This delineated the SC joint (Fig. 3). Subsequently, a mixture consisting of 1 mL of 0.5% preservative-free bupivacaine and 1 mL of 40 mg/mL of Depo-Medrol was slowly injected into the joint. The patient tolerated the procedure well and had significant pain relief immediately following injection.

FOLLOW-UP

The patient was able to resume her daily activities without any functional impairment. She remained pain-free for nearly 2 months at which time a second injection was repeated relieving 75% of her remaining pain. She had a total of 3 more left sternoclavicular joint injections at approximately 6 month intervals with excellent clinical benefit reported. Subsequently she has been maintained on celebrex 200 mg bid without any significant recurrences of her pain to date. Her level of activity is currently without limitations and the use of her left arm and shoulder restored.

DISCUSSION

Osteitis condensans of the clavicle (OCC) is usually a triangular area of sclerosis extending over the lower third of the medial end of the clavicle with increased radionuclide uptake on bone scintigraphy at the same site. Reported cases involving the clavicle are typically unilateral and occur in women (2-5). The pathophysiology of OCC remains undetermined but multiple etiologies have been proposed including osteonecrosis (2), an embolic event (3), marrow fibrosis (2), fibro cartilage-associated sclerosis of bone as likely influenced by various female endocrine factors (4), and a mild inflammatory process in the joint as postulated by Brower et al (1) as a response to abnormal mechanical stresses of the sternoclavicular joint (e.g., heavy lifting, strenuous exercise, trauma) (1,3,5). The commonly reported presentation includes chronic pain from months to years in duration localized to the medial end of the clavicle often with radiation of the pain to the neck, shoulder, temporomandibular joint area, or at times to the arm. In some case reports there was only localized swelling without any pain. Jean-Marie Berthelot et al (4) described 2 cases where the condition resolved spontaneously in 4 years without any treatment. There are typically no constitutional symptoms or laboratory test abnormalities other than possibly a mildly elevated ESR in children (6). In 24% of cases the condition was discov-

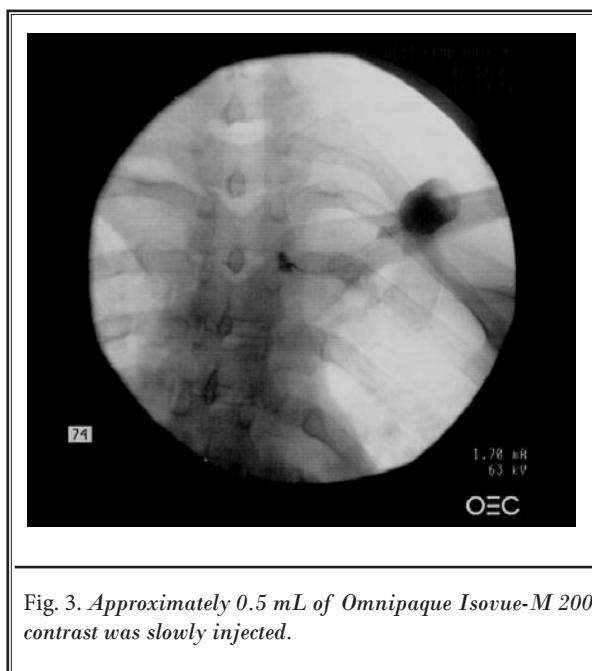


Fig. 3. Approximately 0.5 mL of Omnipaque Isovue-M 200 contrast was slowly injected.

ered incidentally on roentgenograms (3). Radiological findings include sclerosis and enlargement of the medial end of the clavicle. Radionuclide bone scans can show a solitary area of increased activity in the affected clavicle. CT scan typically shows obliteration of the marrow space with new bone formation and inferior osteophytes. MRI is also an excellent diagnostic modality. Diagnosis is usually made by a combination of clinical examination and radiological findings. Biopsy with histologic analysis can also help make the diagnosis but is more invasive.

The differential diagnosis of a clavicular lesion includes osteomyelitis, sternoclavicular hyperostosis, Friedrich's disease, and degenerative arthritis. Tumors that can be included in the differential diagnosis are osteoid sarcoma, Ewing's sarcoma, and Hodgkin's disease. Many treatment methods have been tried in the past including NSAIDs, radiation, antibiotics, chemotherapy, physical therapy, and surgical excision (7), but these have reportedly had varying but largely limited degrees of success. This case report describes the successful use of a novel treatment modality for Osteitis condensans affecting the clavicle. A series of injections into the affected sternoclavicular joint with a corticosteroid local anesthetic mixture in this patient achieved a significant and lasting degree of analgesia and improved level of functioning.

CONCLUSION

The sternoclavicular joint is a true joint and susceptible to the development of osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, Reiter's syndrome, and psoriatic arthritis. The joint is also affected by trauma mainly during deceleration injuries as well as blunt trauma to the chest (8). Sternoclavicular joint injections have been used to relieve pain associated

with osteoarthritis and other inflammatory disorders involving the joint. Based on our clinical experience, and given the limited clinical success of other reported conservative treatment measures, a sternoclavicular joint injection under fluoroscopic guidance using a local anesthetic-corticosteroid injectate should be considered as a viable treatment option for pain associated with Osteitis condensans of the clavicle.

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