Painful Intramuscular Lipoma of the Infraspinatus: Unusual Location and Presentation

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abstract

Intramuscular lipomas are considered a rare type of benign lipomas. They are usually located deeper and are less palpable than subcutaneous lipomas. A painful presentation with no palpable mass will make clinical diagnosis difficult; in these cases, further imaging should be considered. Only a small number of cases of intramuscular lipomas present with pain; these are located in the supraspinatus and deltoid muscles. To the authors’ knowledge, there have been no previous reports of painful intramuscular lipomas involving the infraspinatus muscle. This article describes a case of intramuscular lipoma uniquely located in the infraspinatus muscle and presenting with shoulder pain. A 49-year-old woman presented with 2 months of left shoulder pain. There was no history of preceding trauma. Pain was aggravated by lying on the left shoulder and by the hand behind the back similar to Crass position. On the physical examination, her shoulder joint range of motion was slightly decreased. Simple radiography showed no significant abnormality, but ultrasonography revealed a hyperechogenic mass within the infraspinatus muscle. There was focal tenderness over the mass, but definite palpation of the mass was not possible. Magnetic resonance imaging revealed a well-circumscribed, homogeneous lesion measuring 43 × 28 × 16 mm within the infraspinatus muscle, leading to a diagnosis of intramuscular lipoma. Her pain was not improved with medication, suprascapular nerve block, and steroid injections. Finally, surgical intervention was done and intramuscular lipoma was confirmed by specimen. After excision, her shoulder pain was improved and resolved. [Orthopedics. 2016; 39(2):e370-e373.]

Intramuscular lipoma is a rare clinical condition accounting for only 1.9% of all benign lipomas.1 Intramuscular lipomas located in the shoulder girdle are less frequent than those in the trunk or lower limb.2 Unlike superficial lipomas, intramuscular lipomas are located within the muscle and sometimes are not palpable on routine physical examination. A presentation of pain without palpable mass makes clinical diagnosis difficult and further imaging should be considered. Only a small number of cases of intramuscular lipomas present with pain; these are located in the supraspinatus and deltoid muscles.3,6

To the authors’ knowledge, there have been no previous reports of painful intramuscular lipomas involving the infraspinatus muscle. The authors report a case of intramuscular lipoma with unique location in the infraspinatus muscle that presented with shoulder pain.

CASE REPORT

A 49-year-old woman presented with 2 months of left shoulder pain and a visual analog pain scale score of 50. There was no preceding trauma. Pain was aggravated...
by lying on the left shoulder and by the hand behind the back similar to Crass position. On physical examination, glenohumeral joint range of motion was 105° in forward flexion and 95° in abduction by goniometer, and T2 spinous process touch in external rotation and L5 spinous process touch in internal rotation by Apley scratch test. To minimize scapular motion during range of motion evaluation, the patient’s scapula was stabilized. There was no definite palpable mass around the shoulder.

Radiography showed no significant abnormality. Ultrasonography revealed a well-demarcated hyperechogenic mass within the left infraspinatus muscle (Figure 1). There was focal tenderness over the mass. Ultrasonography showed no definite rotator cuff tendon pathology. A mixture of 20 mg of triamcinolone and 5 mg of lidocaine was injected into the subacromial-subdeltoid bursa under ultrasound guidance, reducing pain slightly from visual analog pain scale score of 50 to 30. Aceclofenac was prescribed. The next day, magnetic resonance imaging with gadolinium enhancement was performed for further evaluation of the mass. Magnetic resonance imaging showed a well-defined fatty mass in the left infraspinatus muscle (Figure 2).

Pain was persistent at 1 week, and a suprascapular nerve block was performed. One week after the second injection, pain had barely improved. The patient was referred for surgical excision of the lipoma.

The mass lesion was exposed through a posterior approach by retraction of the posterior deltoid. The lesion was located within the infraspinatus muscle and well marginated. There was no neurovascular involvement. The mass was easily excised, with a lipomatous appearance macroscopically (Figure 3).

Pain was reduced 1 day postoperatively. Pathology of the surgical specimen confirmed intramuscular lipoma. Five weeks postoperatively, the patient was pain free with full range of motion.

Figure 1: Grey-scale ultrasound of the left infraspinatus muscle. Corresponding short axis view along the infraspinatus muscle showing a relatively high echogenic mass (asterisk) compared with that of surrounding muscle (A). Long axis view showing longitudinal continuous internal echoes parallel to the long axis of the lesion (B).

Figure 2: Intramuscular lipoma in the shoulder of a 49-year-old woman. Corresponding axial T1-weighted (TR/TE; 563/10) (A) and T2-weighted (TR/TE; 4344/70) (B) spin-echo magnetic resonance images showing a well-defined fatty mass (intramuscular lipoma measuring 43 × 28 × 16 mm) in the left infraspinatus muscle with a signal intensity similar to that of the subcutaneous adipose tissue. Corresponding T1-weighted fat-saturated magnetic resonance image after administration of intravenous gadolinium showing no abnormal enhancement (C). Oblique coronal (D) and sagittal (E) T1-weighted magnetic resonance images showing intramuscular and longitudinal location within the infraspinatus muscle corresponding to the ultrasonographic findings.
Case Report

**Discussion**

Benign lipomatous lesions are the most common benign soft tissue tumor and represent the largest single group of mesenchymal tumors. Most of them are located in the superficial subcutaneous plane and composed of mature fatty tissue. Intramuscular lipoma is a form of benign lipomatous lesion intimately associated with muscular tissue.

Intramuscular lipomas are rare compared with superficial lipomas. Intramuscular lipoma is more common in the lower limbs and trunk, with the shoulder girdle less often involved. Intramuscular lipomas of the shoulder region are especially uncommon. There are only isolated case reports of intramuscular lipoma involving the shoulder muscles, including the deltoid, supraspinatus, and subscapularis. Intramuscular lipoma of the infraspinatus muscle has not been reported in the literature.

Most intramuscular lipomas are not painful. Among 40 cases with intramuscular lipoma involving the lower limb, upper limb, and trunk, including 6 of the deltoid muscle, an asymptomatic mass was the most common symptom in 24 (60%) of the cases. Swelling with no palpable mass was the second most common symptom (13 cases, 32.5%). Three patients (7.5%) reported pain. The presenting symptom of an intramuscular lipoma was also usually a painless mass when located in the upper extremity. Although there are few cases in the literature documenting intramuscular lipoma in the shoulder, some of them had shoulder pain as the initial presenting symptom. Intramuscular lipomas located in the supraspinatus had a painful presentation with impingement syndrome. Many of the intramuscular lipomas located in the trapezius and deltoid were not painful, but in a few reports, lipomas in the deltoid were painful.

Unlike superficial lipomas, intramuscular lipomas are located within the muscle and sometimes are not palpable on physical examination. Painful intramuscular lipoma without palpable mass could possibly delay the final diagnosis or be misdiagnosed as a common shoulder pain syndrome, such as rotator cuff syndrome or adhesive capsulitis. In cases of painful shoulder unresponsive to conventional treatment, further imaging workup should be considered despite there being no palpable mass.

Ultrasonographic evaluation is widely being used in the diagnosis of musculoskeletal disorders. In the current case, the ultrasonographic image showed a hyper-echoic lesion within the involved muscle. However, ultrasonographic features of deep-seated lipoma tend to be variable. Paunipagar et al reported 64 deep-seated lipomas in which 36 (56%) were intramuscular type. Echogenicity of lipoma was hyperechoic to muscle in 37 cases (57%), isoechoic to muscle in 13 (21%), and hypoechoic to muscle in 14 (22%).

Surgical outcomes have been satisfactory in case reports. Su et al reported 8 patients with intramuscular lipoma treated by marginal excision. The surgical results were good, and no local recurrence was noted in an average follow-up period of 40 months.

**Conclusion**

Pain due to intramuscular lipoma can be cured by surgical excision of the tumor. Intramuscular lipoma in the infraspinatus is rare and is not considered a common cause of shoulder pain. Definite palpation of the mass is not always possible and further diagnostic efforts are required to avoid misdiagnosis.

**References**


