

## CASE REPORT

# Lipoma Arborescens in Bicipitoradial Bursae: A Rare Anterior Painful Elbow Swelling with Dual Morphology

<sup>1</sup>Mohammad Moin Uddin, <sup>2</sup>Md Abu Bakar Siddiq, <sup>3</sup>Aminuddin A Khan

## ABSTRACT

Lipoma arborescens (LA) is a benign rare synovial neoplasm characterized by hyperplastic proliferation of fatty tissue that replaces the subsynovial connective tissue layer. Lipoma arborescens usually grows inside the joints, but it is also rarely found inside a bursae. This is a case of LA inside bicipitoradial bursae of a 50 years lady. Although six cases of LA in bicipitoradial bursae had been previously described in literature, this case is unique as features of two different types of morphology documented in the same lipoma. Here, in this write-up we describe common clinical features and sonographic findings LA in a middle-aged Bangladeshi woman.

**Keywords:** Bicipitoradial bursae, Dual morphology, Elbow swelling, Lipoma arborescens, Ultrasound.

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**Conflict of interest:** None

## INTRODUCTION

Bursae consist of a synovial membrane enveloping a film of liquid located at interfaces between moving structures, where friction must be reduced. The bicipitoradial bursa lies between the distal tendon of the biceps brachii and the radial tuberosity. It sometimes presents septation; it does not communicate with the joint cavity.<sup>1</sup> Bicipitoradial bursitis refers to inflammation of the bicipitoradial bursa.<sup>2</sup> Lipoma arborescens (LA) is a rare lesion of synovial joints and bursae that probably represents a nonspecific response to synovial irritation or inflammation.<sup>3</sup> Pathologically, LA is characterized by a benign

hyperplastic process in which mature adipose cells replace the subsynovial layer.<sup>4</sup>

This is a case of LA in bicipitoradial bursae in a 50 years old lady with their ultrasound images of the bursae showing the rare features of combination of a fatty and a fluid filled part altogether. Ultrasound-guided aspiration followed by intralesional steroid (Triamcinolone acetonide 40 mg/ml) injection into the fluidal portion of the bursae was also performed. As far our knowledge, this is the seventh case of LA in bicipitoradial bursae.<sup>5</sup> Usually morphological features of a particular LA are unique. However, two different morphologies in two different lobes of a LA sometimes may be possible as we document in this patient.

## CASE REPORT

A 50 years lady came to the department of physical medicine and rehabilitation with the complaints of right anterior elbow pain that aggravated with elbow joint movements. Besides, there was a slowly progressive swelling in front of the right cubital fossa for 4 years (Fig. 1). The pain often radiated proximally in the arm and distally in the forearm. She had no other local or systemic ailments except osteoarthritis in both knee. There was no history of trauma over the elbow. Tenderness was appreciated on palpating right anterior elbow. A slightly tender non-fluctuant mass of soft-cystic consistency was noted which was divided into proximal and distal portion by the bicipital aponeurosis. Overlying skin was quite normal and it was not adhered with the underlying swelling. No other relevant musculoskeletal problem was detected. Neurologic examination revealed no abnormality. Routine laboratory investigations, such as complete blood count (including erythrocyte sedimentation rate), urine routine examination, and X-ray of right elbow revealed nothing significant information. Both rheumatoid factor (RA) test and anti-CCP (cyclical citrullinated peptide) antibody were negative. Antinuclear antibody (ANA) was not done considering age and absence of other features.

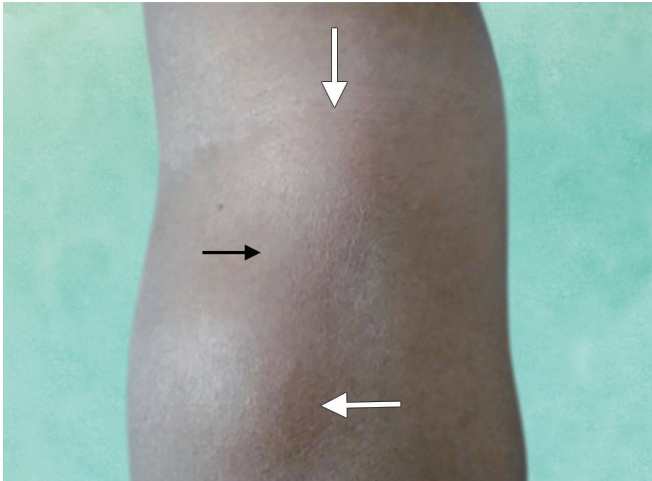
Sonography showed a hyperechoic lobulated mass, located around the biceps tendon and aponeurosis. The distal part of the mass was completely filled with fatty tissue interspersed by connective tissue septum (Fig. 2).

<sup>1,2</sup>Consultant, <sup>3</sup>Professor

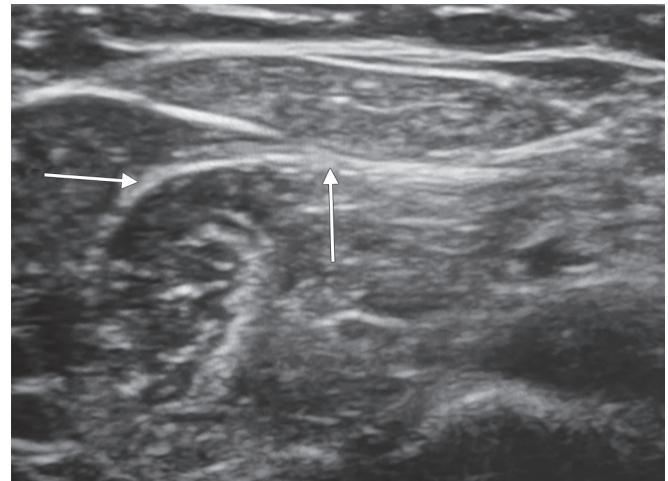
<sup>1,3</sup>Department of Physical Medicine and Rehabilitation Chittagong Medical College Hospital, Chittagong, Bangladesh

<sup>2</sup>Department of Physical Medicine and Rehabilitation, Feni Diabetes Hospital, Feni, Bangladesh

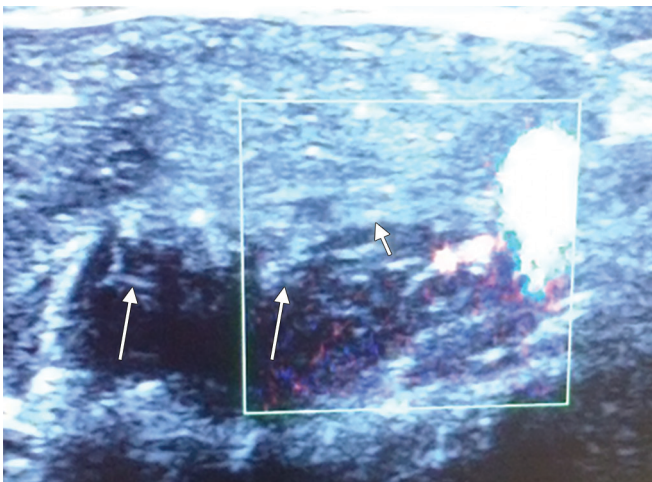
**Corresponding Author:** Mohammad Moin Uddin, Consultant Department of Physical Medicine and Rehabilitation, Chittagong Medical College Hospital, Chittagong, Bangladesh, e-mail: moinmonju@gmail.com



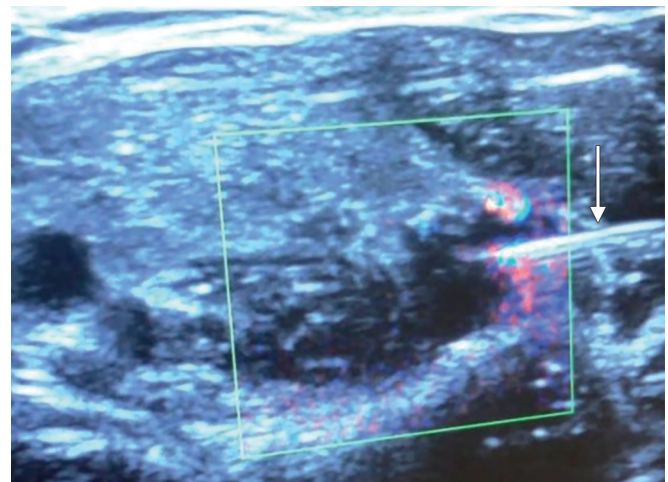
**Fig. 1:** Anterior elbow swelling of lipoma arborescens that causes elbow pain. Vertical and horizontal white arrows show two portions separated by bicipital aponeurosis (black arrow)



**Fig. 2:** Sonographic appearance of lipoma arborescens: The fibrofatty portion. Lobulated fatty mass is interspersed with connective tissue septa (white arrows)



**Fig. 3:** Lipoma arborescens and ultrasound features: The fluid containing portion. Villous projections are seen (white arrows) into a fluid-filled cavity (black area)



**Fig. 4:** Ultrasound-guided aspiration of fluid from lipoma arborescens. White arrow indicates approaching needle. Increased vascularity is seen by power Doppler

Conversely, the proximal part consisted of debris of fatty tissue with villous projection inside into a fluid cavity (Fig. 3). Color Doppler imaging revealed increased vascularity. Three milliliters of clear fluid was aspirated under ultrasound guidance (Fig. 4).

## DISCUSSION

Lipoma arborescens is a rare disorder of synovial joints and bursas that has also been called villous lipomatous proliferation of the synovial membrane.<sup>5</sup> Although it is most commonly seen in and around knee joint (particularly in suprapatellar compartment), presentations in wrist, ankle, shoulder, and elbow have also been described.<sup>6</sup> Its etiology is unknown, but it is considered a nonspecific response to synovial irritation or inflammation.<sup>5</sup> Conditions associated with LA include osteoarthritis, trauma, diabetes mellitus, psoriatic arthritis and chronic rheumatoid arthritis.<sup>6,7</sup> Although associated pain with

LA is not that much common, some patients may present with pain.<sup>8</sup> Common clinical features of LA are outlined in Table 1.

Pathologically, LA is characterized by a benign hyperplastic process in which mature adipose cells replace the subsynovial layer, which manifests on imaging as fat-containing villous or frond-like projections along the synovium.<sup>7,9,10</sup> Therefore, LA is distinguishable from the other synovial lesions and synovial proliferative disorders.<sup>4,6</sup>

Sonographic features can suggest the correct diagnosis (Table 2).<sup>5,6</sup> The relationship of the mass with the distal biceps tendon helps recognize that the process anatomically arises within the bicipitoradial bursa. The LA presents as a multilobulated mass. Presence of fluid is most easily appreciated on sonography. This finding should be highly specific for a synovial process since one would not expect a soft tissue neoplasm (e.g. liposarcoma) to have free fluid. Other differential diagnoses, such as synovial

**Table 1:** Features of lipoma arborescens in the bicipitoradial bursae of elbow

Features	LeCorroller T et al <sup>5</sup>	Dinauer P et al <sup>6</sup>	Sinués EM et al <sup>4</sup>	Ranganath K et al <sup>7</sup>	Our case
Age of the patient (years)	62	37	44	22	50
Gender	Woman	Man	Women	Man	Woman
Duration of swelling (years)	1	1.5	2	3	4
Elbow involved	Left elbow	Both elbow	Left elbow	Left elbow	Right elbow
Located around the biceps tendon (sonography/MRI)	Yes	Not evaluated	yes	Not mentioned	Yes
Associated elbow problems	Radial tuberosity enthesophyte	None	None	Osteoarthritis	None

MRI: magnetic resonance imaging

**Table 2:** Sonographic findings of lipoma arborescens that simulate findings of this case

Ultrasound features	LeCorroller T et al <sup>5</sup>	Sarawagi R et al <sup>8</sup>	Learch TJ et al <sup>9</sup>	Aydin G et al <sup>10</sup>	Kim RS et al <sup>11</sup>
Hyperechoic mass	Present	Present	Present	Present	Present
Multilobulated mass	Present	Not mentioned	Not mentioned	Not mentioned	Not mentioned
Synovial villous projection	Present	Present	Present	Present	Present
Presence of both fat and fluid	Present	Present	Present	Present	Present
Increased vascularity	Increased	No signal	No signal	Not mentioned	Moderate vascularity

lymphoma and synovial osteochondromatosis, can be differentiated.<sup>11</sup> Synovial lipoma is very rare and it is usually a single circumscribed mass seen in ultrasound, of a round or oval morphology, which lacks the tree-like aspect of LA.<sup>11</sup> Osteochondral bodies present in osteochondromatosis should be visible in the radiological studies.<sup>4,11</sup>

Fewer than 100 cases of LA in different sites have been mentioned in the literature while only six cases have been described in the bicipitoradial bursae.<sup>4,12</sup> Moreover, this case is unique because unlike the previous six cases, this LA was consisted of two parts of different morphology. Despite histological confirmation could not be done due to lack of patient consent, the sonologic findings typically simulate the earlier case reports in the literature (Table 2).

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