International Journal of Orthopaedics and Physiotherapy
Online ISSN: 2664-8997, Print ISSN: 2664-8989
Received: 03-02-2019; Accepted: 04-03-2019
www.orthopedicsjournals.com
Volume 1; Issue 1; January 2019; Page No. 13-14

Clinical Assessment of Lipoma-induced Brachial Plexus Compression: A Case Report

Fatih Özden[1*], Özgür Nadiye Karaman[2], Emine Aslan Telci[3]
[1] Department of Elderly Care, Köyceğiz Vocational School of Health Services, Muğla Sıtkı Koçman University Köyceğiz, Muğla, Turkey
[2] Muğla Sıtkı Koçman University, Training and Research Hospital Kötekli, Muğla, Turkey
[3] Physiotherapy and Rehabilitation Department, School of Physical Therapy and Rehabilitation, Pamukkale University Kınıklı, Denizli, Turkey

Abstract
Lipomas are defined as a benign tumour of adipose tissue. It is the most common form of mesenchymal tumours and has a soft, mostly round shape, and can be seen in small and sometimes giant forms in any part of the human body, usually subcutaneously. We report a moderate to giant diameter lipoma localized in the supraclavicular region which caused to a brachial plexus injury. The unique features of this case report are the elaboration of the clinical parameters of this rare condition, especially the physical condition described in detail after physical therapy sessions. Lipoma-induced Brachial Plexus Injury and its treatment results have not been discussed before in the literature.

Keywords: Lipoma, brachial plexus, range of motion, muscle strength

1. Introduction
Lipomas are defined as a benign tumour of adipose tissue. It is the most common form of mesenchymal tumours and has a soft, mostly round shape, and can be seen in small and sometimes giant forms in any part of the human body, usually subcutaneously. It can be seen in different parts of the body such as lower extremity and deep areas of the shoulder [1, 2]. Lipomas can be seen at any age, but most commonly occur between the ages of 40-60 [3]. It is usually about two cm in diameter and rarely grows more than 10 cm, reaching giant dimensions Lipomas associated with peripheral nerves have been reported to represent less than 5% of all peripheral nerve tumours [5]. We report a moderate to giant diameter lipoma localized in the supraclavicular region which caused a brachial plexus compression. The unique features of this case report are the elaboration of the clinical parameters of this rare condition, especially the physical condition described in detail after physical therapy sessions. Lipoma-induced brachial plexus compression and its treatment results have not been discussed before in the literature.

2. Case Report
A 55-year-old female patient presented with a 4-year history of mass localized in the scalene triangle and the suprascapular area on the left side. Written informed consent was obtained from the patient for publication of this case report. The patient was diagnosed with a lipoma on Ultrasonography (US) images after medical assessment. About three months ago, the patient began to have a feeling of stretching in the area of the lipoma, particularly affecting the shoulder joint. The presence of a soft grey adipose tissue with an encapsulated yellow-grey colour of 5.5×4.5×3.5 cm on the midclavicular region was reported. Symptoms of numbness and slight loss of strength spread to the patient's upper extremity. When the patient's medical history was examined, it was known that he had cholesterol and vitamin D deficiency which was medically monitoring. After the increment of symptoms, the patient presented to the surgeon again. After US imaging, it is seen that the lipoma grew 0.5 cm and started to proliferate. After Magnetic Resonant Imaging (MRI) and other required examinations, it was decided to excise the mass with local excision technique surgically. A 3 cm incision extending parallel to the clavicle bone was performed. Short and successful surgical excision performed approximately 10 minutes. The patient applied to the outpatient physical therapy unit about one month ago for the control of symptoms. According to the Electromyography (EMG) findings, results were consistent with an acute lesion in the left upper brachial plexus branches. The symptoms were a pain, the loss of flexion and abduction of the shoulder range of motion (ROM), limitation of movement and decreased functionality. In our first physical examination, the postural deformity was observed in the sagittal plane. The left shoulder was slightly protruding to the anterior. The scapula was slightly abducted, and it was thought that there might be scapular dyskinesia due to weakness, especially in the serratus anterior and rhomboideus muscles. Clinical evaluations were carried out to show the compression on the upper branch of the brachial plexus that might be affected especially the c5 level and consequently, there might be a weakness in the muscle groups innervated by the axillary branch. Firstly, ROM evaluation performed in the supine position. The ROM of shoulder flexion and abduction active movements were 160, 180 degrees, respectively. Adduction, internal rotation and external rotation were in the normal limits of ROM. In the sitting position, against the gravity, the flexion joint range of motion was 90 degrees, and the abduction was 50 degrees. Secondly, muscle strength was assessed according to the Medical Research Council Manual Muscle Testing scale. Shoulder flexors, extensors, abductors, internal rotators and external rotators were measured as 3+, 4, 3, 4 and 3+, respectively. In the wrist

and hand evaluation, the value measured in all muscle groups was 5. The pain was evaluated according to the visual analogue scale (VAS). The VAS of the left shoulder was 6.1 at rest and increased to 9.1 at the activity. Lastly; Disabilities of the Arm, Shoulder and Hand (DASH), Oxford Shoulder Score (OSS) and The Shoulder Pain and Disability Index (SPADI) questionnaires were performed to observe the functional status of the patient, SF-36 (Short Form-36) scale was used to evaluate the quality of life [6-9]. According to the patient-reported outcomes; the disability level of the patient increased, functionality and quality of life decreased, especially in terms of physical parameters. The scores of these evaluations are presented in Table-1 and Table-2. Written informed consent was obtained from the patient for publication of this case report.

Table 1: Results of DASH, OSS and SPADI

		Score
DASH		
	Function/Symptom	61.7
OSS		
	Total	17
SPADI		
	Pain	70
	Disability	62.5
	Total	65.4

Table 2: Results of SF-36 and subscales

		Scores
SF-36		
	Physical function (PF)	15
	Role limitations due to physical health (RP)	0
	Bodily pain (BP)	22.5
	General health (GH)	25
	Energy/Vitality (VT)	0
	Social function (SF)	87.5
	Role limitations due to emotional problems (RH)	100
	Emotional well-being (MH)	24

3. Conclusions

Among the soft tissue tumours, lipomas are the most common masses that rarely cause brachial plexus compression and various symptoms in the shoulder joint. Some cases have been reported that such lipomas may have consequences associated with impingement syndrome in the shoulder joint.10 In our case, brachial plexus compression caused some symptoms related to the axillary nerve in the shoulder joint. In such cases, the follow-up of the patient with MRI, US and especially EMG, in nerve injuries caused by lipoma, is essential to prevent or control the symptoms before they occur. We can emphasize the importance of patient follow-up and evaluation in order to minimize the decrease in quality of life and functionality associated with clinical symptoms such as paresthesia, pain, decreased range of motion, loss of muscle strength. The most prominent symptom in this case report is the EMG results that are related to the clinical results. Innervation of the middle and anterior part of the deltoid muscle (innervated by the axillary nerve), which is also an upper branch of the brachial plexus, affected by the loss of upper limb flexion and abduction.

In conclusion, lipoma induced brachial plexus compression is a rare case that should be followed up surgically and conservatively. In conservative treatment, treatment should be planned according to the affected brachial plexus branch and re-education of the related muscles should be ensured. It should be noted that EMG findings are precious in guiding physiotherapy and rehabilitation applications during the follow-up process.

4. Acknowledgments

Authors declare that there is no conflict of interest and no funding. We would like to thank Yassine Lembarki for English editing.

5. References

1. Allen B, Rader C, Babigian A. Giant lipomas of the upper extremity. Canadian Journal of Plastic Surgery. 2007; 15:141-144.
2. McTighe S, Chernev I. Intramuscular lipoma: a review of the literature. Orthopedic reviews, 2014, 6.
3. Moran AM, Jian B, Min H, Pechet T, Fogt F. Peripheral intrapulmonary lipoma in a 26-year-old woman–a case report. Polish Journal of Pathology. 2011; 62:113-115.
4. Vandeweyei E, ScagnoI I. Axillary giant lipoma: a case report. Acta Chirurgica Belgica. 2005; 105:656-657.
5. Teles AR, Finger G, Schuster MN, Gobbato PL. Peripheral nerve lipoma: Case report of an intraneural lipoma of the median nerve and literature review. Asian journal of neurosurgery. 2016; 11:458.
6. Düger T, Yakut E, Öksüz Ç. The reliability and validity of Turkish version of DASH Questionnaire. Physiother Rehabil. 2006; 17:99-107.
7. Tuğay U, Tuğay N, Gelecek N, Özkan M. Oxford Shoulder Score: cross-cultural adaptation and validation of the Turkish version. Archives of orthopaedic and trauma surgery. 2011; 131:687-694.
8. Bumin G, Tüzün EH, Tonga E. The Shoulder Pain and Disability Index (SPADI): Cross-cultural adaptation, reliability, and validity of the Turkish version. Journal of Back and Musculoskeletal Rehabilitation. 2008; 21:57-62.
9. Koçyiğit H, Aydemir Ö, Fişek G, Ölmez N, Memiş A. The validity and reliability of Turkish version of the Short Form 36 (SF-36). Turkish J Drugs Therap. 1999; 12:102-106.
10. Sucuoglu H, Akgun K. Subacromial lipoma causing shoulder impingement syndrome. Journal of back and musculoskeletal rehabilitation. 2017; 30:707-710.