

PAPER DETAILS

TITLE: Epidemiology of Subcutaneous Lipomas

AUTHORS: Gurmeet SINGH SARLA

PAGES: 350-359

ORIGINAL PDF URL: <https://dergipark.org.tr/tr/download/article-file/699463>

Deri Altı Lipomların Epidemiyolojisi

Gurmeet SINGH SARLA¹

Öz

Lipom, yağ hücrelerinden oluşan yavaş büyüyen, kapsüllenmiş, yuvarlak çıkıntılı, dalgalanan ve ağrısız bir tümördür. Vücudun yağ bulunduğu yerde ortaya çıkar ve adından da anlaşıldığı gibi “yaygın tümör” veya “her yerde bulunan tümör”dür. Bu çalışmada Subkutan Lipomların epidemiyolojisini gözden geçirmeyi ve değerlendirmeyi amaçladık. 1 yıl boyunca histopatolojik inceleme yapılmayan ve visseral olmayan lipomlu 126 hastanın tümü yaş, cinsiyet, boyut, bölge ve lipomun çokluğu açısından incelendi. 126 hastanın 75'inde (% 71,90) lipomlar 5 cm'den küçüktü. Çoğu genç erkek olan 22 hastada (% 17,46) multipl subkutan lipom bulundu. 126 hastanın 70'i (%62,98) 40-60 yaş grubu arasındaydı. Çalışmamızda deri altı, non-visseral lipomun prevalansı erkeklerde daha yaygındı, 126 hastadan 78'i (% 61,90) erkek, 48'i (% 38,09) kadındı. Bu çalışmada sonuç olarak, lipomlar yaygın, benign, yavaş büyüyen, genellikle asemptomatik tümörlerdi. Erkeklerde daha yaygın ve 31-60 yaş grubunda yaygın olarak ortaya çıkmıştır. Genellikle baş, boyun ve gövde bölgesinde ortaya çıkmış ve genellikle 5 cm'den küçüktü.

Anahtar Kelimeler: Lipom, epidemiyoloji, deri altı

Epidemiology of Subcutaneous Lipomas

Gurmeet SINGH SARLA¹

Abstract

Lipoma is a slow growing, encapsulated, lobulated, fluctuant and painless tumour composed of fat cells. It occurs anywhere in the body where fat is found and hence the name ‘universal tumour’ or ‘ubiquitous tumour’. We aimed to review and evaluate the epidemiology of Subcutaneous Lipomas in this study. All 126 patients who had a non-visceral lipoma diagnosed on histopathological examination during a period of 1 year were analysed as regards the age, gender, size, site and multiplicity of the lipomas. The lipomas were smaller than 5 cm in 75 of the 126 patients (71.90%). Multiple subcutaneous lipomas were found in 22 patients (17.46%), most of them young males. 62.98 % (70 out of 126) patients were between the age group of 40 to 60 years. The prevalence of subcutaneous, non- visceral lipomas was more common in males as in our study, out of 126 patients, 78 (61.90%) patients were males and 48 (38.09%) patients were females. As a result in this study, lipomas were common, benign, slow growing, and generally asymptomatic tumours. They were more common in males and commonly occurred in the age group of 31- 60 years. They commonly occurred in the head and neck and trunk region and were usually less than 5 cm in size.

Keywords: Lipoma, epidemiology, subcutaneous

Yayın Bilgisi

Gönderi Tarihi: 12.10.2018

Kabul Tarihi: 13.12.2018

Online Yayın Tarihi: 30.09.2019

DOI: 10.26453/otjhs.470122

Sorumlu Yazar

Gurmeet Singh Sarla

MH Devlali, Nasik, Maharashtra,

Pin 422401, India

Tel: +919882562223

e-Mail: rijak1@gmail.com

Article Info

Received: 12.10.2018

Accepted: 13.12.2018

Online Published: 30.09.2019

DOI: 10.26453/otjhs.470122

Corresponding Author

Gurmeet SINGH SARLA

MH Devlali, Nasik, Maharashtra,

Pin 422401, India

Tel: +919882562223

e-Mail: rijak1@gmail.com

¹Classified Specialist Surgery, Military Hospital Devlali, Devlali Cantt Nasik, Maharashtra, Pin 422401, India

INTRODUCTION

Lipomas present as the most common tumour in the human body.¹ Rare in children and more common in obese individuals,¹ these benign soft tissue neoplasms typically develop in the 5th to 7th decade of life. Histologically, lipomas are nearly indistinguishable from normal adipose tissue.¹ Although the

histological appearance resembles mature adipose tissue, lipomas are not derived from mature adipocytes but rather from mesenchymal preadipocytes.² Lipomas are estimated to be multiple in 5-15% of patients.³ Multiple causative factors have been proposed that include genetic, traumatic, and metabolic triggers. Lipoma formation

following physical trauma has been reported widely. Growth factors, cytokines, and other inflammatory mediators released following blunt trauma to soft tissue induce pre-adipocyte differentiation into mature adipocytes and formed a clinically apparent mass.⁴ Fat necrosis and the extravasation of blood secondary to trauma stimulated preadipocyte differentiation has also been postulated.⁵

It was aimed to review and evaluate the epidemiology of Subcutaneous Lipomas in this study.

MATERIALS AND METHODS

This was a retrospective study where patients' data were collected from the department of Surgery of a peripheral hospital in Nasik. All patients who reported with a subcutaneous, painless, slow growing tumour who were clinically diagnosed as lipoma were included in the study. Further histopathology reports of these patients who underwent excision of the tumour were studied and the data were analysed.

Ethical Approval : Approval for the study was granted by MH Devlali Ethics Committee (+919717121247), and permission to analyse the histopathological reports of the patients was taken from the Pathologist of the hospital who reported upon these specimens.

Inclusion and exclusion criteria

All asymptomatic, subcutaneous swellings were included in the study. Fine needle aspiration cytology (FNAC) was done for all patients prior to excision of the tumour and FNAC proven lipoma patients were included in the study. Spinal cord lipomas diagnosed on Magnetic Resonance imaging (MRI) scan imaging and lipoma of the breast diagnosed on Ultrasonography studies and FNAC were excluded. No FNAC report was suggestive of malignancy.

Sample collection

Sample was personally sent by the operating / treating Surgeon in the Operating room under sterile conditions after excision of the tumour and was transported to the lab within one hour of collection.

RESULTS

71.42 % (90 out of 126) patients were between the age group of 31 to 60 years ([Table 1](#)) with maximum cases (36 out of 126 patients : 28.57%) clustering in the age group 41- 50 years.

In our study, lipoma was more common in males; 78 (61.90%) patients were males and 48 (38.09%) patients were females ([Fig 1](#)).

Females were most commonly affected in the age group of 11-20 years; 100% (2 out of 2 patients) in the age group of 11- 20 years were

females, followed by the age group 61- 70 years (6 out of 14 patients: 42.85%), 51- 60 years (14 out of 34 patients: 41.17%) and 31-40 years age group (8 out of 20 patients: 40%).

In our study, most common site for lipoma is head and neck and trunk; 78 out of 126 lipomas were found on head and neck and trunk making it 75.52% ([Table 2](#)). 38 (30.15%) out of 126 lipomas affected the forearm ([Table 2](#)). 71.90% (75 out of 126) were smaller than 5 cm

([Table 3](#)). Multiple subcutaneous lipomas were found in 22 patients (17.46%), most of them young males.

DISCUSSION

Lipomas occur anywhere in the body where fat is found and hence the name ‘universal tumour’ or ‘ubiquitous tumour’. Lipomas are defined as mesenchymal tumours which typically lie subcutaneously. Less commonly, they can also be found on internal organs, such as stomach and bowels. These masses are not typically attached to underlying muscle fascia. Lipomas are composed of lobulated, slow-growing, mature adipose tissue, having a minimal connective tissue stroma. They are commonly enclosed in a thin, fibrous capsule.

Pathophysiology: Multiple causative factors have been proposed that include genetic, traumatic, and metabolic triggers. Lipoma

formation following physical trauma has been reported widely. Lipomas have been associated with numerous pathophysiological processes.

Diabetes,⁶ hyperlipidemia,¹ mitochondrial dysfunction,⁷ and endocrinopathies such as nodular goiter,⁸ multiple endocrine neoplasia type 1,⁹ and Cushing's syndrome¹⁰ have been noted.

Presentation: Patients often complain of a soft, mobile mass of tissue they can feel under the skin. These are typically painless unless they are encroaching joints, nerves, or blood vessels. Rarely, these lipomas can form in muscles or organs. Lipomas are mostly harmless and are only excised if they cause pain due to their location, if they are impacting an organ's function or for cosmetic reasons.

Histology: Histologic examination of lipomas reveals mature, normal-appearing adipocytes with a small eccentric nucleus. Histologic subtypes of lipomas include angiolipomas, myelolipomas, angiomyolipomas, myelolipomas, fibrolipomas, ossifying lipoma, hibernomas, spindle cell lipomas, pleomorphic lipomas, chondroid lipomas, and neural fibrolipomas. Common lipomas and its variants must be distinguished from liposarcomas which are a malignant lipomatous neoplasm containing lipoblasts, which are characterized by coarse vacuoles and one or more scalloped, hyperchromatic nuclei.

Diagnosis: When subcutaneous, diagnosis can be made by a characteristic “doughy” feel on palpation. Application of an ice pack to the tumour to chill and harden the fat has also been used to aid in diagnosis.¹⁰ On plain radiograph, lipomas appear as an area of characteristic radiolucency referred to as a “water-clear density.”¹¹ Ultrasound examination demonstrates a homogeneous and circumscribed hyperechoic area.¹² Both CT and MR imaging are reliable for localization,¹³ diagnosis,¹³ size estimation,¹⁴ as well as evaluation of bony involvement.¹⁵

Treatment : The treatment modalities include intra-lesional steroids,¹⁶ intralesional transcutaneous sodium deoxycholate¹⁷ injections, liposuction¹⁸ of the tumour, or surgical excision. Surgical excision is likely the most effective method to prevent recurrences, though the encapsulation must also be removed for the most effective treatment and to decrease the risk of reoccurrence. If the decision is made to excise lipomas, then it should be done while the lesions are smaller rather than after they grow larger to reduce the risk of these encroaching on joints, nerves, and blood vessels, thus making the excision more difficult and invasive. However, surgical resection or observation without intervention remains the standard of care.

Complications: Lipomas rarely cause complications. However, patients with

untreated compression syndromes may experience decreased neurological function and intractable neuropathic pain.¹⁹ Rarely, recurrence may occur and is typically associated with incomplete excision of deep, infiltrative lesions or lesions entangled within neurovascular structures.²⁰

Malignant variation: Liposarcomas present as one of the most common soft tissue sarcomas of the body.¹ Like lipomas, these tumours usually present as a small, slowly enlarging painless mass, although high-grade lesions may develop rapidly.²¹ Liposarcomas most commonly present as deep-seated tumours in the retroperitoneum or, classically, on the thighs. The etiology of a liposarcoma is unknown, but most are thought to arise *de novo*.¹ Reports of malignant transformation of lipomas are rare in the literature.²² Malignant transformation of lipomas has been rarely reported, but, as a rule, well-differentiated liposarcomas are not derived from lipoma.²³ In our study too, no specimen sent for histopathological examination showed any evidence of liposarcoma.

Conclusion

Lipomas are common, benign, slow growing, and generally asymptomatic tumours. They are more common in males and commonly occur in the age group of 31- 60 years. They commonly occur in the head and neck and trunk region and are usually less than 5 cm in

size. Simple subcutaneous lipomas may be diagnosed by history and physical examination alone. Fine needle aspiration cytology (FNAC) may be done to differentiate them from epidermoid cyst or ganglion which are the closest differential diagnoses. Most lipomas are treated with surgical excision with few complications or recurrence. Malignant degeneration is rare. The prognosis for benign lipomas is very good. Once these tumours are excised, mainly for cosmetic reasons, they often do not return.

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Table 1. Age incidence and gender distribution in case with lipoma.

Age	Sex	Number of cases	Percentage %
11-20 years	Male	0	1.58
	Female	2	
21-30 years	Male	9	9.52
	Female	3	
31-40 years	Male	12	15.87
	Female	8	
41-50 years	Male	24	28.57
	Female	12	
51-60 years	Male	20	26.98
	Female	14	
61-70 years	Male	8	11.11
	Female	6	
71-80 years	Male	5	6.34
	Female	3	
Total		126	100

Table 2. Regional distribution of lipoma in reference to gender.

Site	Sex	Number of cases	% in sex	% in site
Forearm	Male	20	15.87	30.16
	Female	18	14.28	
Back	Male	19	15.08	22.22
	Female	9	7.14	
Anterior Abdominal wall	Male	9	7.14	12.7
	Female	7	5.56	
Chest	Male	7	5.56	9.53
	Female	5	3.97	
Neck	Male	7	5.56	7.93
	Female	3	2.38	
Thigh	Male	8	6.35	7.93
	Female	2	1.59	
Scalp	Male	8	6.35	9.53
	Female	4	3.17	
Total		126	100	100

Table 3. Distribution of the size of lipoma as revealed after surgical excision.

Size of specimen of lipoma as evident after excision	Number of cases
1.1-2.0 cm	22
2.1- 3.0 cm	20
3.1- 4.0 cm	18
4.1- 5.0cm	15
5.1- 6.0 cm	15
6.1- 7.0 cm	10
7.1- 8.0 cm	12
8.1- 9.0 cm	6
9.1- 10.0 cm	8

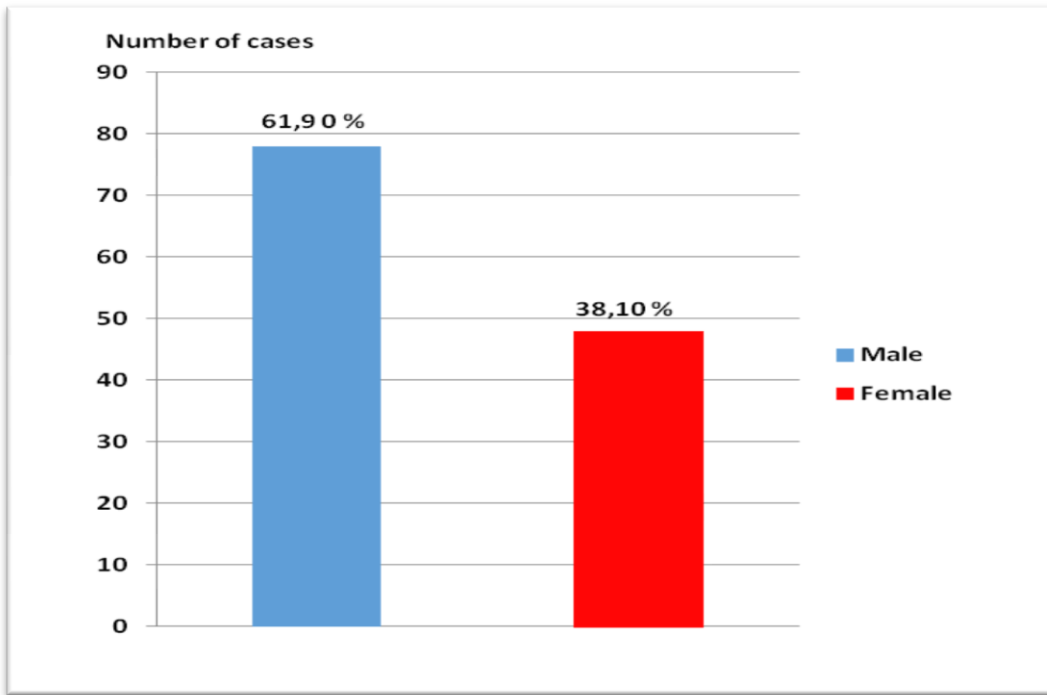


Figure 1. Distribution of lipoma in sexes.