

Characteristics of the Histopathology of Liposarcoma in the Anatomic Pathology Laboratory of North Sumatera University Medical Faculty/ Anatomic Pathology Unit of Haji Adam Malik Medan General Hospital in 2016-2018

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Abstract-Background: Liposarcoma is soft tissue malignancy with an incidence of 9.8% of all musculoskeletal sarcomas. However, the rare incidence causes little case publication or clinical clinicatology in these tumors, especially in Indonesia.

Objective: To determine the characteristics of liposarcoma in the Anatomical Pathology Laboratory of the USU Medical Faculty and the H. Adam Malik General Hospital Medan in 2016-2018.

Methods: All clinical and pathological characteristics were obtained through medical records and pathology. This is a descriptive study with cross sectional approach.

Results: The results showed that the incidence of liposarcoma in the Anatomic Pathology Laboratory of the USU Medical Faculty and the H. Adam Malik General Hospital in Medan that could be used as the study sample were 34 people, the youngest age was 14 years and the oldest was 73 years. The incidence in men is more frequent than women, the most common age is ≥ 61 years, and the most common location is in the abdomen. The type of myxoid liposarcoma is the most common.

Conclusion: Musculoskeletal sarcoma is a heterogeneous group of rare malignant tumors involving bone and soft tissue. Determination of histopathological grading is very important in determining therapeutic choices. Also in determining the prognosis of the histopathological subtype is also very helpful.

Index Terms- Characteristics, liposarcoma, subtype, grading.

I. INTRODUCTION

Musculoskeletal sarcoma is a heterogeneous group of rare malignant tumors involving bone and soft tissue. Sarcoma are rare, with most occurring less than 5 per 1,000,000 residents. The most common are leiomyosarcoma, Kaposi sarcoma, malignant fibrous histiocytoma, followed by liposarcoma and fibrosarcoma.¹ Cases of soft tissue malignancy are relatively rare cases of malignancy compared to other cases of malignancy. In Europe there have been 4-5 / 100,000 / year cases of soft tissue malignancy and liposarcoma is the most common case of all sarcomas. The literature states that the incidence of liposarcoma occurs in 2.5 cases in 1 million population. Most often middle age, namely the fifth decade but can also occur in all ages,

including children and adolescents. Myxoid liposarcoma often arises at a younger age (children), compared to well-differentiated liposarcoma and pleomorphic. The incidence in men is slightly higher than in women.²⁻⁴

Liposarcomas are malignant neoplasms with adipocyte differentiation. They occur most often in the fifth and sixth decades of life, and are one of the most common soft tissue sarcomas in adults, with an annual incidence estimated at around 2.5 per million in the Swedish population and relative incidents between liposarcomas and other sarcomas ranging from 9.8 % to 16.0%.^{5,6} Liposarcomas are usually large and most often occur in all parts of the body, about 50% are in the lower extremity (thigh), and one third involves the abdomen, and about 3% occur in the head and neck.⁷⁻⁹ Etiology and also the pathogenesis of liposarcoma until now has not been known with certainty, it is thought that this condition is associated with genetic and environmental disorders. These genetic abnormalities vary depending on liposarcoma subtypes such as ALT / WDL amplification on chromosome 12q14-15, myxoid liposarcoma translocation on chromosomes (12; 16) (q13; p11), dedifferentiated liposarcoma amplification occurs on chromosome 12q13-21, and pleomorphic liposarcoma amplification occurs on chromosome 12q14-15. In some cases liposarcoma can be induced by radiation.^{5,10-13}

II. MATERIAL AND METHODS

Sample selection

This is a descriptive study, using a cross sectional approach. The study was conducted at the Department of Anatomical Pathology, Universitas Sumatera Utara/ H. Adam Malik General Hospital, Medan and includes 34 cases of liposarcoma. The research was held from 2016 until 2018. All samples were obtained through surgical procedure. Inclusion criteria were liposarcoma cases with adequate clinical data, and histopathological slide tissue of liposarcoma patients. Detailed clinical data were obtained from medical records or pathology archives consisting of age, sex, and location of the tumor. Histological type and grade were determined independently by researchers

through hematoxyllin and eosin stained slides examination.

III. RESULT

Patients' characteristics

The mean age for liposarcoma patients was 48,5 (± 16,6) years. The most common in > 61 years age group. Twenty-one patients (61,8%) were males, only 13 patients (38,2%) were females. All the tumors were located in abdomen was the predominance. The histological subtypes of liposarcoma varied and myxoid liposarcoma was the majority of this case. Clinical basic characteristic of liposarcoma patients were summarized in table 1. Representative H&E sections are shown in figure 1.

Table 1. Characteristic of liposarcoma patients

Characteristics	Number of cases	Percentage (%)
Age, mean ± SD, years	48,5 ± 16,6	
11-20 years	2	5,9
21-30years	4	11,8
31-40 years	6	17,6
41-50 years	6	17,6
51-60years	5	14,7
>61years	11	32,4
Sex		
Male	21	61,8
Female	13	38,2
Location		
Extremitas	12	35,3
Retroperitoneum	9	26,5
Abdomen	13	38,2
Subtype		
Atypicallipomatous tumor/welldifferentiated	10	29,4
Myxoid liposarcoma	18	52,9
Dedifferentiated liposarcoma	1	2,9
Pleomorphic liposarcoma	5	14,7
Histological grade		
Grade 1	10	29,4
Grade 2	17	50,0
Grade 3	7	20,6

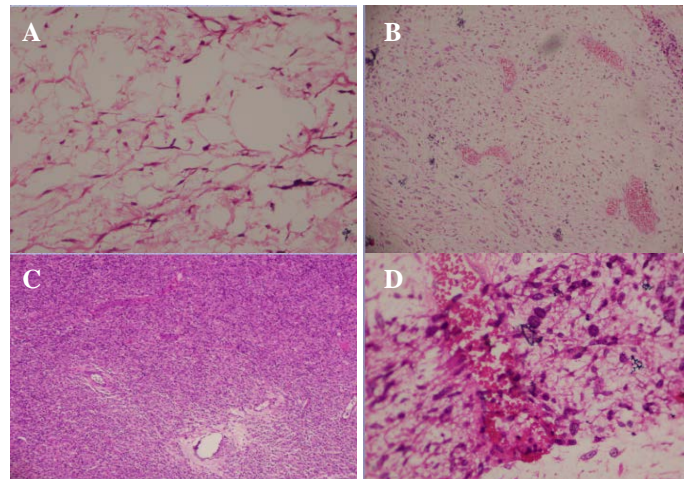


Figure 1. Histological type. A, Atypical lipomatous tumor/well-differentiated liposarcoma B, Myxoid liposarcoma. C, Dedifferentiated liposarcoma. D, Pleomorphic liposarcoma.

IV. DISCUSSION

In the research conducted from 2016-2018 at the Anatomical Pathology Laboratory of the USU Medical Faculty and the H. Adam Malik Central General Hospital in Medan, 34 patients were diagnosed histopathologically as liposarcomas. In this study it was found that the number of liposarcoma patients was found at ≥ 61 years of age, namely 11 patients (32.4%), and the least found at the age of 11-20 years as many as 2 people (5.9%), Afiati *et al* (2013) which divided cases with a median age below <58.5 years and ≥ 58.5 years, the highest age was found at age <58.5 years because in this study there were many cases of liposarcoma subtypes at a young age namely myxoid liposarcoma.¹⁴ Alaggio *et al* (2009) reported that myxoid liposarcoma is the most common subtype with an excellent prognosis in patients younger than 22 years.¹⁵

In this study, the number of liposarcoma patients was more common in men than in women. According to WHO the incidence of liposarcoma in men is slightly higher than that of women.¹⁰ Hartati *et al* (2015) which states that most sufferers are female (60%), with a ratio of women: men of 1.6: 1.¹⁴ Cheng J *et al* (2012) stated that liposarcoma is more common in women.¹⁶

Most locations in this study were found in abdomen followed by limbs and retroperitenium. The results of this study are also different from those of Afiati *et al* (2013) which stated that the highest location of liposarcoma is in the lower extremity.¹⁴ This is in accordance with the statements of several literatures which state in general the location of liposarcomas, respectively, in the lower limb, retroperitoneal, perirenal, then mesenteric region, and others. Knebel *et al* (2017) which states that most liposarcoma locations are in the extremities, differences in location may occur because the liposarcoma subtype has the most different prediction of location.¹⁰

In this study the most common liposarcoma subtype was the myxoid liposarcoma subtype. Afiati *et al* (2013) stated that the most subtypes were myxoid liposarcoma. According to Tos *et al* (2010) this myxoid liposarcoma is a disease at a young age and in both cases studies are often encountered at a young age compared to other subtypes.¹⁷

Knebel *et al* (2017) obtained different results from this study, namely atypical lipomatous tumors / well-differentiated ALT / WDL, which were the highest results.¹⁸

The liposarcoma grading in this study which was most often found was grade 2 followed by grade 1 and grade 3. Jourge *et al* (2015) who received the most grading, namely grade 2.¹⁹ Baig MA (2015), which states that the results of his research found the highest grade 3.²⁰

V. CONCLUSION

The number of patients with liposarcoma is more common in men. Most are at the age of tahun 61 years and the least at the age of 10-20 years. In location most are found the abdomen and are the least common in the retroperitoneum. The most histopathological type of liposarcoma is the myxoid liposarcoma type. Grading of liposarcoma is most commonly found in grade 2.

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