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SOLITARY FIBROUS TUMOUR OF THE PLEURA: SURGICAL TREATMENT, OUR CASES ANALYSE.

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ABSTRACT

Rationale: Solitary fibrous tumors (SFT) of the pleura are rare tumours, originated from the mesenchimal tissue, underlying the mesothelial layer of the pleura. This tumours present unpredictable clinical course, probably related to their histological and morphological characteristics. **Objective:** The aim of the study was to evaluate our experience of surgical treatment of Solitary fibrous tumours (SFT) of the pleura. **Material and Patients:** Twenty-one (27) patients affected by SFT of the pleura were referred to us for surgical resection in our clinic in SU"Shefqet Ndroqi" from September 1999 to April 2014. **Results:** Surgical excision required 19 posterolateral thoracotomies, seven anterio-lateral thoracotomies and one video-assisted thoracoscopy. Average tumor diameter was 8.5 cm (range, from 4.5cm to 25 cm) and weight was 130 g (range from 5g to 2,560 g). In all our patients resections were complete. No intraoperative or perioperative medical or surgical complications occurred. Median chest-drain duration timed 3 (range 2-5) days and median hospital stay was 5 (range 4-7) days. We have no perioperative mortality. Only one patient experienced tumour recurrence. **Conclusions** Surgical resection of benign solitary fibrous tumours is usually curative, but local recurrences can occur years after seemingly adequate surgical treatment. Malignant solitary fibrous tumours generally have a poor prognosis. Clinical and radiological follow-up are indicated for both benign and malignant solitary fibrous tumours.

KEYWORDS: Solitary fibrous tumor of the pleura, clinical features, imaging, pathology, treatment, SFT: Solitary fibrous tumours.

INTRODUCTION

Primary neoplasms of the pleura are rare tumours with unpredictable behaviour. They are divided into two major categories: diffuse (mesothelioma) and localized tumours. Diffuse pleural tumours are more common than solitary ones. They arise from the mesothelial tissue. Localized pleural tumours have a mesenchymal rather than a mesothelial origin. Therefore, the term 'localized mesothelioma' was replaced by 'solitary fibrous tumours of the pleura' (SFTPs). [1, 2] They have been known by a variety of names that reflect their clinical course and controversies surrounding their histogenesis.[3, 4] More than 800 cases of SFTP have been reported in the literature. Wagner reported the first primary localized pleural tumour in 1870. Klemperer and Rabin were the first who published the accurate pathological description of this tumour in 1931, in which they classified mesothelioma as either 'localized' or 'diffuse'.[5] In 1942, Stout and Murray claimed that localized mesothelioma had a mesothelial origin. Advances in immunohistochemical studies and electron microscopy have proved the mesenchymal origin of these tumours.[6.7] Lack keratin reactivity and positive CD34 antigen differentiates fibrous tumor from mesothelioma.[8]

OBJECTIVE

The aim of the study was to evaluate our experience of surgical treatment of Solitary fibrous tumours (SFT) of the pleura.

MATERIAL AND PATIENTS

This is the retrospective study. Twenty-one (21) patients affected by SFT of the pleura were referred to us for surgical resection in our clinic in SU "Shefqet Ndroqi" from September 1999 to April 2014. Basic biocemichal and spirometric tests had been carried out on patients. Chest radiograph and computed tomography of the chest were performed in all patients. Immuno-histochemical reactions were positive for CD34 but weren't done in all patients. Diagnosis was made by biopsy with Fine Needle Aspiration or VATS. Median follow-up period was 70 months. During this period patients were submitted to chest X-ray with 6-months interval to evaluate possible local recurrence. We use Fisher's exact test to evaluate significant difference among continues variable and x^2 for categorical variable. The difference is considered significant for $p < 0.05$.

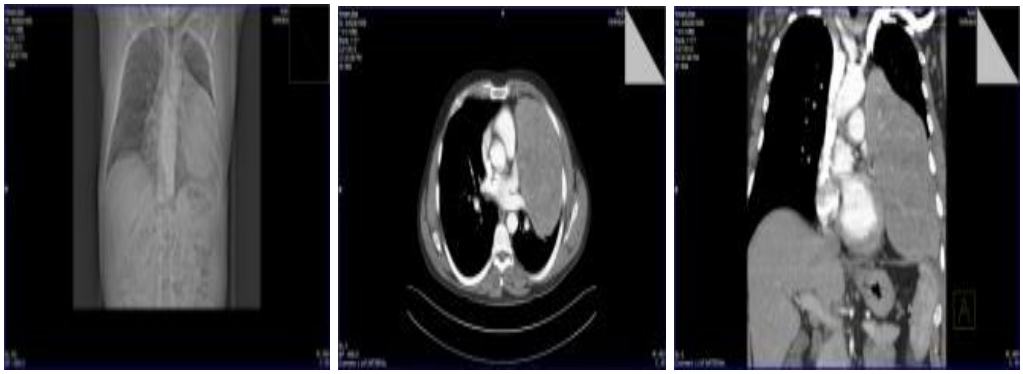

Figure 1: P-A radiography and CT- scan of left sisde pleural tumor, in 68-old man patient.

RESULTS

Of total 27 patients 16 were males and 11 females with median age of 51 years (range 21-73yrs). Twelve patients 12 (43%) were asymptomatic, while predominant clinical symptoms or signs of the rest 15 patients were dyspnea 2 (10%), coughing 5 (23%), chest pain 3 (19%), finger clubbing 2 (10%) and hypoglycemia 1 (5%). Hypoglycemia was related to a pathological incretion of insulin-like growth factor 2 by the tumor.

Table 1: Localized fibrous tumor of the pleura, clinical feature.

Symptoms characteristic	total 27 patients
Asymptomatic	12 (44.4%)
Symptomatic patients	15 (56.6%)
Chronic cough	5 (33.3%)
Chest pain	3 (20 %)
Dyspnea	2 (13.3 %)
Fever	4 (26.6 %)
Hypertrophic pulmonary osteoartropathy with or without clubbing	1 (6.6 %)
Hypoglycemia	1 (6.6 %)
Pleurisy	1 (6.6 %)
Weight loss	1 (6.6 %)
Pneumonitis	1 (6.6 %)
Delirium	1 (6.6 %)

According to pathologic features sixteen patients (16) were diagnosed with benign tumors and eleven (11) patients with malignant tumors. Increased cellularity 8 (72%) cases and pleomorfizem 9 (82%) cases are predominant histopatologic features in malignant group, while in benign group only 2 cases had increased celluiarity and one case had pleomorfisem, (table 2).

Average tumour diameter was 8.5 cm (range, from 4.5cm to 25 cm) and weight was 130 g (range from 5cm to 2,560 g).

Table 2: Pathologic features between benign and malignant localized fibrous tumor of pleura.

Feature	Benign (n=16) N	%	Malignant (n=11) N	%	p-value (Fisher's exact test)
Gross feature					
Pedunculated	4	25	0	0	
Atypical location	1	6.3	3	27	0.15
Size (>10 cm)	6	37.1	7	64	0.34
Necrosis and hemorrhage	1	6.3	4	36	0.12
Microscopic					
Increased cellularity	2	12.6	8	72	0.003
Pleomorphism	1	6.3	9	82	0.0001
Mitosis (> 4 mf/10 hpf)	-	-	6	56	

Surgical excision required 19 (nineteen) posterolateral thoracotomies, seven (7) anterior lateral thoracotomies and one video-assisted thoracoscopy, wich continued as open thoracotomy. Seventeen (17) tumors arose from visceral pleura and wedge resection was performed, nine (9) tumors arose from parietal pleura and extra pleural resection was carried out without any chest-wall resection, one (1) tumour growth within the lung lobe and required lobectomy.

In all our patients resections were complete. Paraneoplastic syndromes like hypoglycemia and clubbing receded after surgery. No intraoperative or perioperative medical or surgical complications occurred. Median chest-drain duration timed 3 (range 2-5) days and median hospital stay was 5 (range 4-7) days.



Figure 2: Gross features of solitary fibrous pleural tumor after total resection

Perioperative mortality rate was 0%. Median follow-up was 70 (range 2-189) months: during this period patients were submitted to chest X-ray with 6-months interval to evaluate possible local recurrence. Only one patient experienced tumor recurrence, the tumor was detected and excised by redo-thoracotomy. At cut section of seven cases (25%) revealed focal necrosis and hemorrhagic zones. Patients with malignant solitary pleural tumor are treated with multimodality treatment, cooperating with oncology clinic.

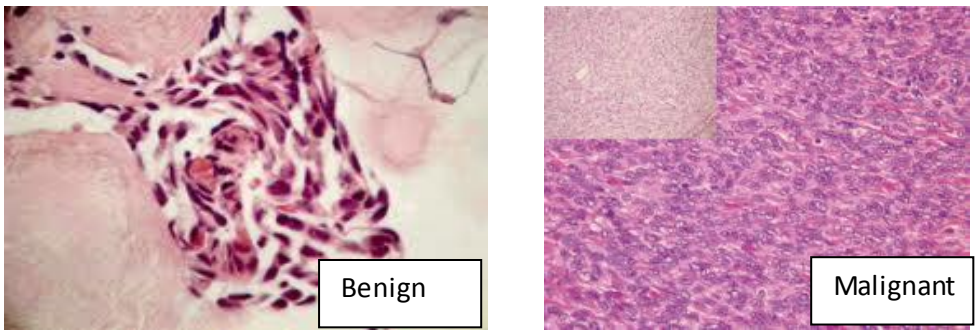

Figure 3: Histological features of solitary fibrous pleural tumor after total resection.

DISCUSSION

Most of malignant pleural diseases have metastatic origin. About 80 % of cases present benign SFT tumor, while 12-22 % of cases represent malignant form [8, 9]. The diagnosis of SFT is quite important because the surgery resection is indicating regardless of tumor size. According to the tumors characteristic 16 (59.2 %) of cases was benign origin and 11 cases (40.8 %) malignant tumors. Based on the data from the literature we have a higher percentage of malign cases (40.8 %) and we believe that this is based in the scarce number of cases in the study.

The average size of tumors with greater diameter was 8.5 cm (minimum 4.5 cm and maximum 25 cm). By average of tumors was 130 grams (min 5.2 grams and max. 560 grams). In our study no significant difference is seeing between two groups (benign 37.1% vs. malign 64% respectively; p=0.34. Although they are tumors of considerable size (up to 40 cm diameter), almost half of them 12 (43 %) were asymptomatic. These data are conforms to the recently literature [10, 11,12]. In the group of patients with clinical signs greatest number of cases cough 5 cases (23 %), followed by chest pain in 3 cases (19 %).

No significant difference are seeing in gross features in both benign and malign groups, but there are significant difference in microscopic features. Increased cellularity result in 8 (72%)

patients with malignant tumor vs. 2 (12.6%) patients in benign group (0.003). Also significant difference is seen among two groups according to increased pleomorphism (8 cases (72%) in malignant group vs. 1 case (6.3%) in benign group, ($p< 0.0001$.

In this study seventeen cases had tumors originating from the visceral pleura and wedge resection was necessary, in nine cases had tumors originating in the parietal pleura. The treatment of choice for both forms of these tumors is complete surgical resection "en bloc".
The results of other studies show that prognosis of benign lesions is very good. In about 80 % of cases the recurrences can occur after the first resection and requires further repeated intervention with better performance.[13]

Prognosis of malignant forms of tumor is not good, because about 63 % of cases may have tumor recurrences of which more than half may have the disease progress within 2 years. Adjuvant chemotherapy and /or radiotherapy for the cases with malignant localized tumors of the pleura are controversial.[14, 15, 16, 17]

In this study patients were followed by chest X-rays every 6 months to assess possible local recurrences. Recurrences occurred in only one case after 26 month follow-up through radiography and underwent redo-thoracotomy. Patients with malignant tumor of the pleura solitary fibrotic we have treated them in collaboration with multimodal oncologic clinic. In any case we had no perioperative mortality.

CONCLUSIONS

Surgical resection of benign solitary fibrous tumours is usually curative, but local recurrences can occur years after seemingly adequate surgical treatment. Malignant solitary fibrous tumours generally have a poor prognosis. Clinical and radiological follow-up are indicated for both benign and malignant solitary fibrous tumors.

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