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PULMONARY METASTASES FROM FIBROSARCOMA: A CASE REPORT

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Abstract

Introduction: Pulmonary metastases arising from extremity fibrosarcoma are among the most common sites of distant metastasis. The median survival after the occurrence of metastasis is approximately one year. Patients treated with nonoperative therapy have a median survival of 11 months. **Case Illustrations:** A 70-year-old female, never smoker, admitted to the hospital with a chief complaint of shortness of breath. The patient had a history of fibrosarcoma on the left foot followed by surgery a year ago. Chest X-ray showed central lung mass with massive right pleural effusion. Post-contrast chest imaging revealed a heterogeneous, enhancing, lobulated mass in both lungs. TTNA and core biopsy were performed under USG guidance on the lung mass. The cytologic findings revealed a metastatic neoplasm-suggestive sarcoma. The concomitant core biopsy showed a histologic pattern of spindle cells arranged in short intersecting fascicles suggestive of metastases of fibrosarcoma. The patient showed rapid deterioration resulting in death on the 20th day of hospitalization. **Discussion:** The incidence of fibrosarcoma in the lower limb accounts for 40% of all cases of soft tissue tumors. Patient with extremity sarcomas are more likely to have distant metastases as their initial site of recurrence. From the histologic pattern, those patients with spindle cell sarcoma were the most likely to have pulmonary metastases. Data on pulmonary metastases arising from extremity fibrosarcoma is poorly available making it difficult to treat metastatic sarcoma. **Conclusion:** Pulmonary metastases from fibrosarcoma are a challenging issue, with a median survival of less than one year post-metastasis. Pulmonary metastasectomy can extend survival to 33 months, but a multidisciplinary approach, including tailored chemotherapy and radiotherapy, is crucial due to the diverse tumor behaviors. This case highlights the rapid progression and poor prognosis of metastatic fibrosarcoma, underscoring the need for comprehensive treatment strategies.

Keywords: ***Pulmonary Metastases, Fibrosarcoma, Soft Tissue Sarcoma***

INTRODUCTION

Fibrosarcoma, according to the 2013 WHO classification is a moderately rare soft tissue tumor characterized by a malignancy of mesenchymal cellular origin, consisting of a fibroblastic component with such variable collagen production, and is typically identified by a "herringbone" pattern. [1,2]. At the beginning, fibrosarcoma was considered the most prevalent soft tissue sarcoma in adults, accounting for approximately 66% of all sarcomas diagnosed at the Mayo Clinic between 1910 and 1930. However, advances in medical science have led to a significant reduction in its reported incidence, attributed to improved classification of soft tissue tumors through enhanced clinical, morphological, and genetic methods, and more accurate differentiation between mesenchymal and non-mesenchymal tumors resembling fibrosarcoma. [3]. Based on recent statistics from Surveillance, Epidemiology, and End Results (SEER), a program developed by the National Cancer Institute, fibrosarcoma is estimated to occur in approximately 3.6% of all sarcoma cases in adults. However, recent studies estimate that the true incidence of fibrosarcoma is more likely less than 1% of all cases of soft tissue tumors in adults. Fibrosarcomas can arise from a variety of anatomical

locations, including the extremities, head and neck, gastrointestinal tract, kidneys, and reproductive tract. The incidence of fibrosarcoma of the extremities is the highest, accounting for 40% of all soft tissue tumor cases. Fibrosarcomas predominantly present in individuals aged between 25-79 years, with an average age of diagnosis above 50 years. [1,2,4]

Patients with extremity sarcomas commonly show a noticeable propensity for distant metastasis, often presenting as an early sign of recurrence. Soft tissue sarcoma is a fairly rare malignancy, accounting for approximately 1% of all cancer cases. However, it is notable that soft tissue sarcomas are responsible for a significantly high proportion (about 70%) of lung metastases. Among these, lung metastases originating from extremity fibrosarcomas are the most prevalent metastases of all. This phenomenon can be caused by the unique physiological characteristics of the lungs, which naturally receive the entirety of the human body's blood and lymphatic flow. The lungs have the densest capillary network in the human body, making them highly susceptible to the entrapment of tumor cells disseminated through the bloodstream and lymphatic channels. Consequently, the lungs are frequently the primary site for metastatic deposits in cases of soft tissue sarcomas originating in the extremities. [5–8].

To date, fibrosarcoma is known as a kind of tumor that has a very poor response to radiotherapy as well as chemotherapy. This is exacerbated by the high recurrence rate of this type of tumor. Pulmonary metastasis is the leading cause of mortality in patients with soft tissue sarcoma, and is responsible for worsening prognosis in the presence of unresectable disease, resulting in a median survival of less than one year. The median survival after the occurrence of metastases is about one year. Patients treated with nonoperative therapy have a median survival of 11 months. Pulmonary metastasis from fibrosarcoma is a complex problem, with a median survival of less than one year post metastasis. Operative resection of the lung involved in metastases (metastasectomy), including metastatic nodules, is still the main therapy in cases of fibrosarcoma with lung metastases given the low sensitivity of fibrosarcoma to radiotherapy and chemotherapy. In addition, pulmonary metastasectomy can extend survival to 33 months. However, a multidisciplinary approach, including tailoring of chemotherapy and radiotherapy is crucial due to the tumor's diverse manifestations. [3,6–10]

CASE REPORT

A female patient, 70 years old, nonsmoker, was admitted to the emergency department with a chief complaint of Shortness of Breath that has been experienced for 2 weeks and worsened over the past day. Shortness of breath was associated with activity and the patient felt breathless after 10 steps when walking (mMRC 4) or when coughing. Shortness of breath was not associated with time or weather. History of Shortness of breath was found not found. Productive cough was observed 1 month ago and worsened over the past week, sputum production with greenish sputum that is occasionally difficult to expectorate. Coughing up blood was not found. Decreased appetite and weight loss was observed up to 5 kgs in a month. The patient had no history of asthma, COPD, pulmonary TB, hypertension, or heart disease. The patient had a history of diabetes mellitus but did not receive regular treatment.There was no family history of lung cancer. In 2023, the patient was hospitalized due to a complaint of a lump on the sole of the left foot. A tissue biopsy was performed, which revealed a diagnosis of fibrosarcoma. Subsequently, the patient underwent surgical resection of the tumor.

Vital signs examination revealed a blood pressure of 155/98 mmHg, a pulse rate of 98 beats per minute, a respiratory rate of 26 breaths per minute, and an oxygen saturation of 96% on room air. The patient’s weight was 50 kg, height was 155 cm, and the body mass index (BMI) was 20.8 kg/m², indicating normoweight status. Examination of the face and neck was within normal limits, with no enlarged lymph nodes detected. Thoracic examination revealed asymmetric lung motion, decreased tactile fremitus in the right lung field, dim percussion notes in the right lung field, and diminished respiratory sounds in the right lung.There was no additional sound of rhonchi (- / -) or wheezing (-/-). Examination of the extremities showed a healed wound on the sole of the left foot. The remainder of the physical examination was within normal limits.

Laboratory results indicated leukocytosis, (11.780/µL) and elevated blood glucose level (335 mg/dl). Albumin level was decreased at 3.23 g/dL. Blood gas analysis showed respiratory alcalosis. Renal function test was within normal limit. Pleural fluid aspiration was performed, and the analysis of the pleural fluid revealed a chronic exudate. (see Table 1).

Table 1. Laboratory Results

Examination	Result	Normal Range
HGB	12,6 g/dL	12-16 g/dL
WBC	**11.780 mm3**	3 4,5-11,0 x 10 /mm³
RBC	6 4.47 x 10 /mm³	6 4,10-5,10 x 10 /mm³
Hematokrit	39.2%	43-49 %
PLT	279.000/mm³	150-450 x 10³/mm³
ESR	**25 mm/ 1 hour**	0 – 20
Neutrophil	84,6 %	50.00 - 70.00
Lymphocyte	10 %	20.00 - 40.00
Monocyte	5,3%	2.00 - 8.00
Eosinophil	0 %	1.00 - 3.00
Na/K/CL	149/3,6/100	135-155/3.6-5.5/96-106
Bun/Ur/Cr	11,3/24/0,57	
Albumin	3,23	3,4 – 4,8
HbA1c	11,8	4,8 – 5,9
Blood Glucose	335	76 – 140
Pleural fluid analysis	Chronic Exudate	

A chest X-ray performed on 21/06/2023, prior to the patient's scheduled surgery for resection of a tumor on the sole of the left foot, demonstrated cardiomegaly with no evidence of pulmonary abnormalities (Figure 1A). A follow-up chest X-ray performed on 17/01/2024, six months after surgery, continued to show cardiomegaly with elongation and calcification of the aorta, with no evidence of pulmonary abnormalities (Figure 1B). However, six months later, a chest X-ray performed on 04/06/2024, not only for follow-up but also to evaluate the patient's new symptom of shortness of breath over the past month, revealed significant pulmonary abnormalities. The findings included a central lung mass and a right massive pleural effusion. Evidence of aortic atherosclerosis was also noted (Figure 1C). Pigtail catheter insertion was then performed on the patient. Chest X-ray performed on 14/06/2024, following pigtail insertion, showed stable findings compared to the previous imaging dated 04/06/2024 (Figure 1D).

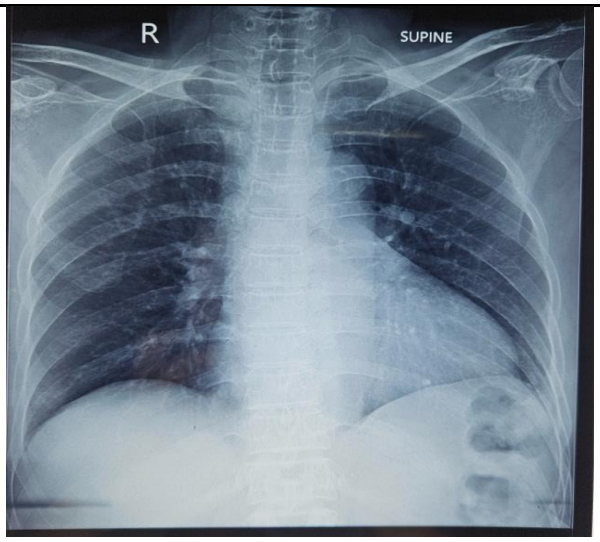	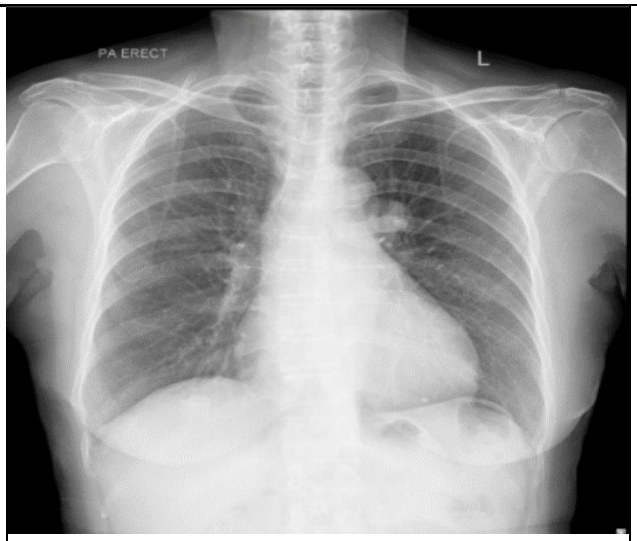
Figure 1.A. Patient's CXR on 21/06/2023 Cardiomegaly. No evidence of pulmonary abnormalities	Figure 1.B. Patient's CXR on 17/01/2024 Cardiomegaly with elongation and calcification of the aorta. No evidence of pulmonary abnormalities

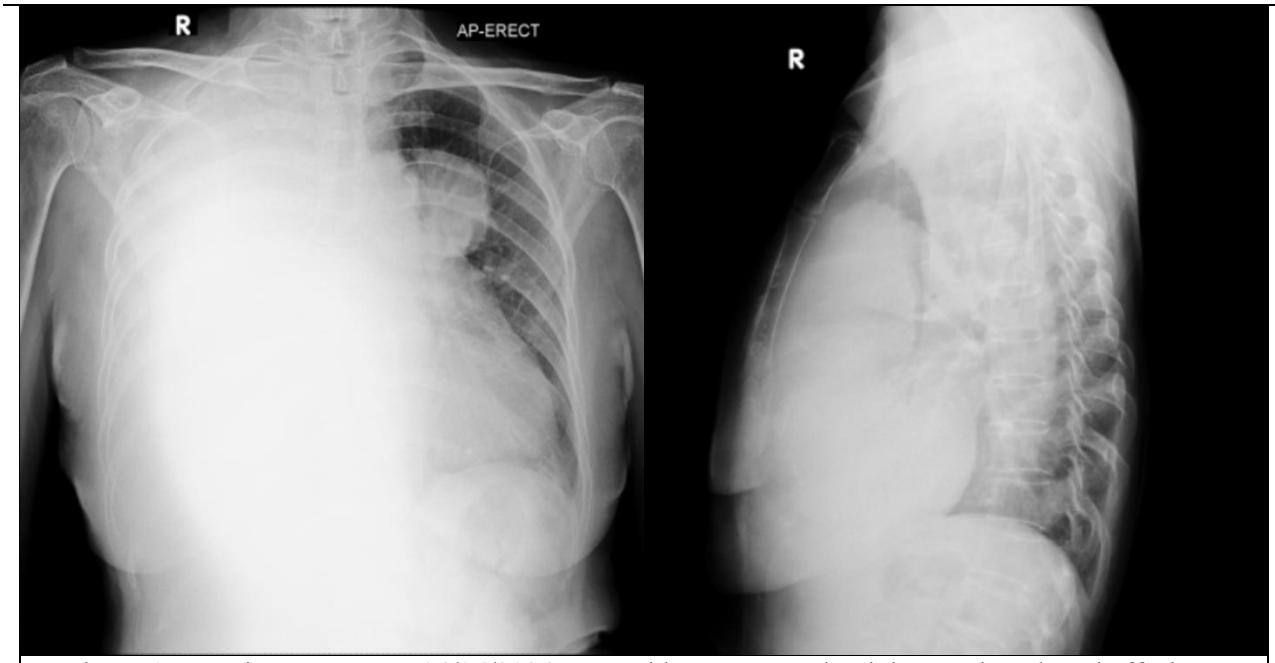

Figure 1.C. Patient's CXR on 04/06/2024. Central lung mass and a right massive pleural effusion. Evidence of aortic atherosclerosis was also noted.

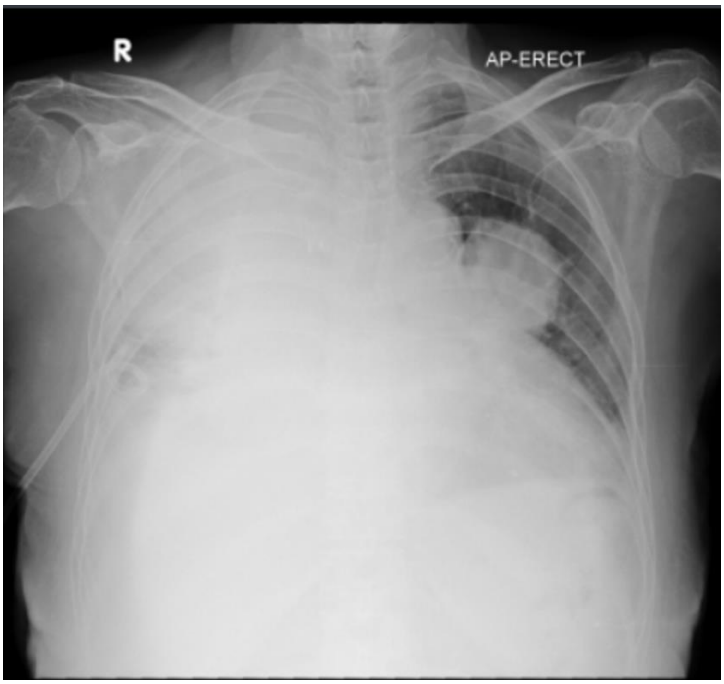

Figure 1.D. Patient's CXR on 14/06/2024 demonstrates a central lung mass with a right massive pleural effusion. A pigtail catheter was in place. Atherosclerosis of the aorta was also noted. Comparison with the previous imaging dated 04/06/2024 showed stable findings.

On MSCT Scan Thorax with IV Contrast examination, post-contrast imaging revealed a heterogeneous, enhancing lobulated mass in the right and left lungs, predominantly on the right, measuring approximately 3.0 x 3.7 x 7.4 cm to 13.0 x 13.0 x 10.0 cm. Total atelectasis of the right lung was noted. There was a right pleural effusion with a

nodule in the posterior right pleura, measuring approximately 3.0 x 2.0 cm. Multiple hypodense lesions, several millimeters in size, were observed in the liver and spleen. Additionally, a nodule measuring approximately 1.4 cm was identified in the subcutaneous tissue of the left anterior chest wall. The mediastinal structures appeared unremarkable, and the right and left main bronchi were patent. There was no cardiac enlargement or evidence of pericardial effusion. There was no enlargement of the mediastinal or hilar lymph nodes. The bones appeared normal, and no suprarenal nodules were identified (Figure 2).

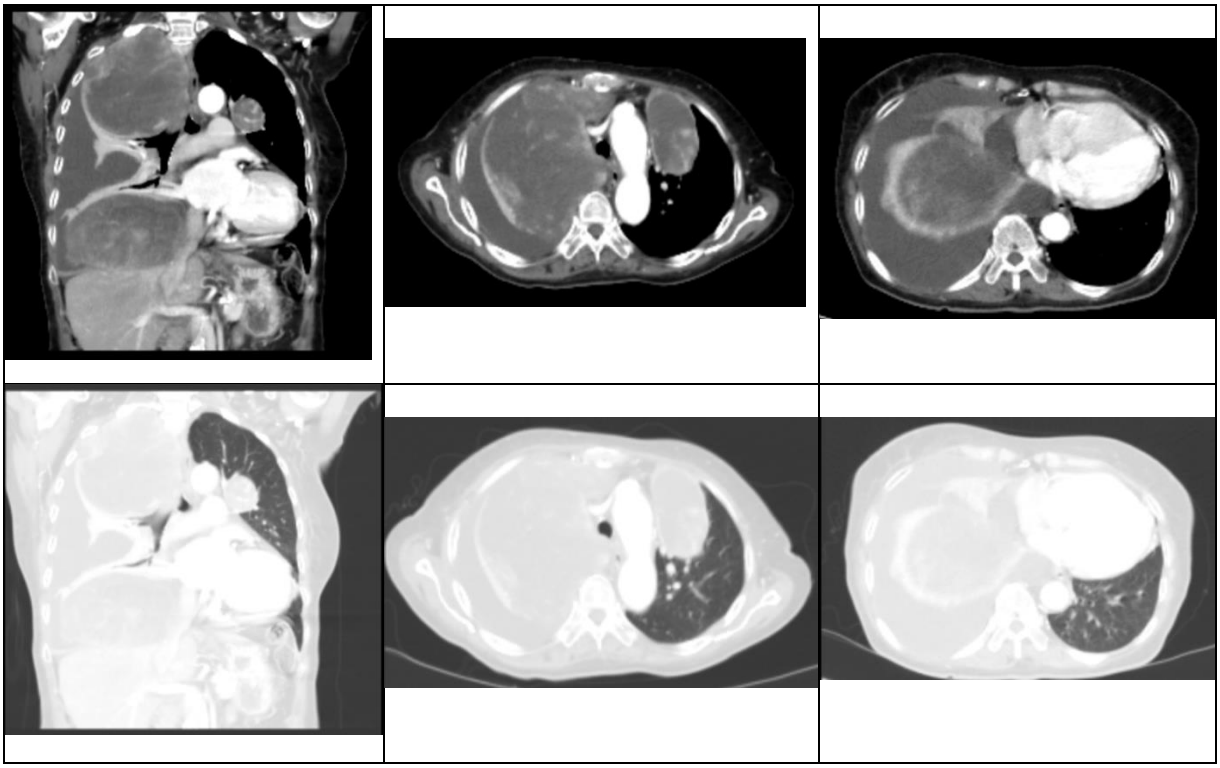

Figure 2. Patient's CT Scan IV Contrast on 06/06/2024. Post-contrast imaging revealed a heterogeneous, enhancing lobulated mass in the right and left lungs, predominantly on the right, measuring approximately 3.0 x 3.7 x 7.4 cm to 13.0 x 13.0 x 10.0 cm. Total atelectasis of the right lung was noted. There was a right pleural effusion with a nodule in the posterior right pleura, measuring approximately 3.0 x 2.0 cm. Multiple hypodense lesions, several millimeters in size, were observed in the liver and spleen. Additionally, a nodule measuring approximately 1.4 cm was identified in the subcutaneous tissue of the left anterior chest wall. The mediastinal structures appeared unremarkable, and the right and left main bronchi were patent. There was no cardiac enlargement or evidence of pericardial effusion. There was no enlargement of the mediastinal or hilar lymph nodes. The bones appeared normal, and no suprarenal nodules were identified.

On TTNA examination with USG guidance, histopathological specimens were obtained and examined. The cytology examination revealed spindle-shaped cells with oval and spindle-shaped nuclei, enlarged nuclei, coarse chromatin, hyperchromasia, and eosinophilic cytoplasm. The histopathology examination demonstrated a proliferation of spindle-shaped cells arranged in a short fascicular pattern. These cells exhibited spindle-shaped to oval nuclei with an increased nuclear-to-cytoplasmic (N/C) ratio, coarse chromatin, prominent nucleoli, and eosinophilic cytoplasm. Areas of necrosis were also observed within the tumor cell mass (Figure 3). It concluded as sarcoma. The final results of this histopathological examination were consistent with the cytological findings of the aspiration biopsy from the sole of the left foot performed on May 26, 2023 prior to the surgical resection of the tumor. The examination revealed a tumor mass composed of anaplastic spindle-shaped cells with coarse chromatin and irregular membranes arranged in a herringbone pattern suggestive fibrosarcoma. The mass also contained connective tissue and inflammatory cells,

including lymphoplasmatic inflammatory cells. The diagnosis was a poorly differentiated fibrosarcoma. The patient was then diagnosed with pulmonary metastases from fibrosarcoma of the lower extremity. The patient showed rapid deterioration resulting in death on the 20th day of hospitalization.

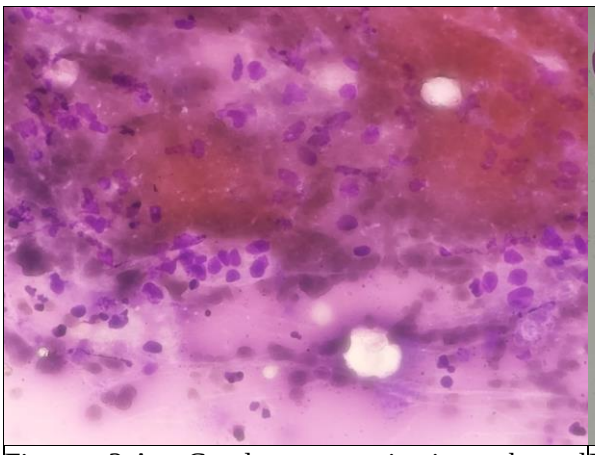

Figure 3.A. Cytology examination showed spindle – shaped cells, oval and spindle - shaped nuclei, enlarged nuclei, coarse chromatin, hyperchromatic, and eosinophilic cytoplasm.

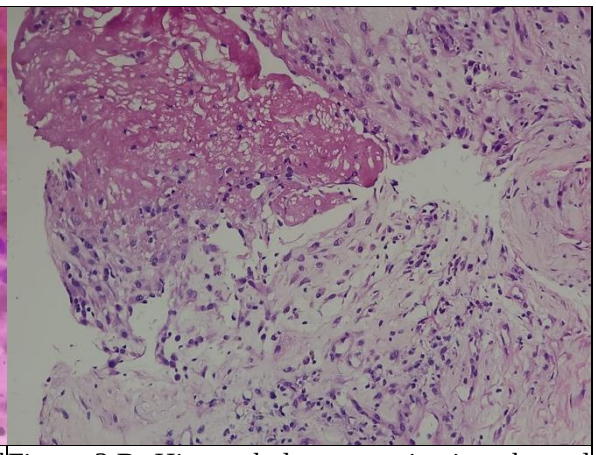

Figure 3.B. Histopathology examination showed proliferation of spindle-shaped cells arranged in a short fascicular pattern. The cells exhibited spindle-shaped, round to oval nuclei with an increased N/C ratio, coarse chromatin, prominent nucleoli, eosinophilic cytoplasm. Areas of necrosis were also observed within the tumor cell mass.

Figure 3. Histopathological Result from TTNA and Core Biopsy USG Guidance 06/06/2024

DISCUSSION

Secondary lung tumors, or metastases, occur when cancer cells spread to the lungs from other parts of the body, either through the bloodstream or lymphatic system. Symptoms of secondary lung tumors may include shortness of breath, cough, and pain, though some patients may be asymptomatic. Secondary lung tumors are commonly associated with metastases from cancers such as those of the bladder, breast, colon, kidney, melanoma, ovary, pancreas, prostate, stomach, thyroid, and cervix. Despite being the rarest type of malignancy (1%), tissue sarcomas account for approximately 70% of lung metastases. [5] Soft tissue sarcoma is an uncommon type of cancer, with around 6,600 new cases reported annually in the United States. While sarcomas can develop in various locations, the extremities are the most frequent primary site.[7] The lungs are the most common site for metastases. Approximately 20% of patients with extremity sarcomas will develop isolated pulmonary metastatic disease at some stage. Although pulmonary metastases typically originate from primary tumors in the extremities, they can also arise from nearly any primary site or histologic variant.[1]

Based on recent statistics from Surveillance, Epidemiology, and End Results (SEER), a program developed by the National Cancer Institute, fibrosarcoma is estimated to occur in approximately 3.6% of all sarcoma cases in adults. However, recent studies estimate that the true incidence of fibrosarcoma is more likely less than 1% of all cases of soft tissue tumors in adults. [1] With better characterization by immunohistochemistry and a new classification of soft tissue sarcomas by the World Health Organization (WHO), tumors previously categorized as fibrosarcomas are now subdivided into specific types of fibrosarcoma or characterized as another type of soft tissue sarcoma. [3,11]Once considered the most common adult sarcoma, the incidence of adult fibrosarcoma has declined dramatically over the past several decades. This is due to 1) evolution in the classification of soft tissue tumors, 2) recognition of clinically, morphologically and genetically distinctive subtypes of fibrosarcoma, and 3) increased understanding of the many other mesenchymal and non-mesenchymal tumors that may mimic fibrosarcoma.[3]

The patient presented in this case report had a known history of fibrosarcoma in the lower extremity, diagnosed approximately one year ago. Following the diagnosis, the patient underwent tumor resection surgery to remove the primary lesion. During the initial treatment, a cytological examination of aspirated material from the tumor site was performed, revealing pathological features characteristic of fibrosarcoma. Interestingly, when a core biopsy of the lung tissue was conducted more recently, the pathology findings closely mirrored those seen in the initial tumor tissue from the lower extremity. This similarity in the cellular and tissue structure provided a strong basis for the diagnosis of pulmonary metastasis, originating from the previously diagnosed fibrosarcoma. The patient's medical history, obtained from records of prior hospital visits, included serial thoracic imaging studies that had been performed routinely to monitor for potential metastatic spread. These imaging tests were part of the follow-up plan after the primary fibrosarcoma resection, aimed at identifying early signs of disease recurrence or distant metastasis. At the time of a thoracic examination in January, no abnormalities were noted in the lungs, and a concurrent liver ultrasound also showed no signs of metastasis, suggesting that the disease was well-controlled at that point.

However, additional imaging in the form of an MRI scan of the left foot revealed a residual mass at the site of the original tumor, raising concern for a local recurrence of the sarcoma. Given that the recurrence of fibrosarcoma is often associated with an increased likelihood of metastasis, particularly to the lungs, this finding significantly heightened the clinical suspicion. Pulmonary metastasis, especially following recurrence, is known to have a higher incidence and is often a marker of aggressive disease progression. At the patient's six-month follow-up, thoracic imaging demonstrated a dramatic shift in the clinical picture. The chest X-ray revealed a massive right-sided pleural effusion and substantial growth of a lung mass within a short span of six months, underscoring the rapid and aggressive nature of the sarcoma's metastatic course. The size and extent of the lung mass, combined with the presence of pleural effusion, were significant indicators of advanced disease. Additionally, a CT scan performed during the same follow-up visit showed the presence of metastatic lesions in the liver, which had not been detected during the liver ultrasound conducted six months earlier. The development of liver metastases in this brief period further emphasized the aggressive progression of the patient's fibrosarcoma. The combination of local recurrence, rapid pulmonary metastasis, and new hepatic involvement illustrates the challenging clinical course of this sarcoma case. Despite initial control of the disease after surgery, the patient's rapid disease progression following recurrence underscores the need for close surveillance and a potentially more aggressive therapeutic approach in managing metastatic fibrosarcoma.

Radiological Finding

In radiological imaging, fibrosarcomas appear as unspecific, often intramuscular localized, ovoid lesions. Its margins are slightly irregular. A fibrosarcoma`s growth is characterized by displacing the surrounding tissue. Consequently, the impression of so-called pseudocapsules is created in the sectional view.[1]

Histopathology

By using a multidisciplinary approach, many sarcomas, especially the small round cell, spindle cell, and myxoid cytomorphologic groups, may be subtyped successfully by FNAB.[12–14] Core needle biopsy is another accurate method to preoperatively diagnose and grade soft-tissue sarcomas in suspicious extremity masses. Use of this technique would obviate the need to deal with poorly placed biopsy incisions and would allow for consultation with an experienced pathologist at a fraction of the cost of open biopsy. In the absence of adequate tissue, open biopsy is required. If adequate tissue is sampled, core needle biopsy precludes open biopsy and can be used for rational treatment planning.[7,9,12,15]

Most soft tissue sarcomas can be assigned to one of the following five histomorphologic groups: pleomorphic pattern, epitheloid cell pattern, myxoid pattern, small round cell pattern and spindle cell pattern. Spindle cell sarcomas represent almost half of all sarcomas. Fibrosarcoma belongs to the spindle cell type of soft tissue sarcomas. Spindle cells are characterized by its oval to fusiform nuclei, its uni- or bipolar cytoplasm and its lance shaped, tapered cells. The typical pattern of spindle-cell sarcomas derives from the fascicle-like cell arrangement. Fibrosarcoma is characterized by its parallely arranged monomorphic spindle-shaped fibroblasts. Often, these strands of fibroblasts are angled perpendicular to each other which causes the impression of a herringbone pattern. The nuclei are prominent with a variable number of nucleoli and an increased irregular, coarsed, granular chromatin; with limited cytoplasm.

Pleomorphism is rare. The amount of necrotic and hemorrhagic tissue, interstitial collagen and mitotic cells correlates with the stage of tumour malignancy. Malignancy also correlates with the degree of differentiation which is assessed by the FNCLCC grading system. The FNCLCC grading system (*Fédération Nationale des Centres de Lutte Contre le Cancer*) is a widely used histopathological grading system for soft tissue sarcomas. It was developed by the French National Federation of Cancer Centers and provides a standardized method for assessing the aggressiveness of sarcomas based on three main factors: differentiation, mitotic count, and tumor necrosis. The grade given by the FNCLCC system helps guide treatment decisions and provides insight into prognosis. [1,12,16,17]

Depending on how much the malignant fibroblasts differ from normal tissue, fibrosarcoma can further be divided into well differentiated, conventional and poorly differentiated forms. The surrounding stromal tissue may take rather firm, keloid-like or loose or myxoid character.[1,16,17]The mesenchymal origin of fibrosarcoma is shown by positive vimentin staining. The most prevalent myogenic markers are desmin, muscle - specific actin (MSA), and alpha - smooth muscle actin (α - SMA). S - 100 protein is one of neuronal marker that differentiated benign peripheral nerve sheath tumors from malignant ones (MPNST). Positive spindle - cell angiosarcomaimmunostains, CD34, CD 31, and factor VIII (von Willebrand factor) immunostains indicate vascular cancers. Vimentin is most the only positively stained marker in fibrosarcoma. As indicators of myofibroblastic differentiation, smooth muscle actin (SMA) and/or muscle - specific antigen (MSA) may occasionally be seen. Sometimes CD34 can be found in fibrosarcomas that develop secondarily from either solitary fibrous tumor (SFT).[1]

Management

Surgical resection is widely regarded as the primary treatment modality for pulmonary metastases arising from soft tissue sarcomas, including fibrosarcoma. Evidence suggests that complete surgical removal of metastatic lesions offers the best chance of survival, with 3-year survival rates ranging between 30% and 42% following complete resection . However, the role of chemotherapy in improving survival after resection remains controversial, with studies showing no significant survival benefit from its use.[8] The best current therapy of fibrosarcomas is generous surgical removal. Even though the response rate of fibrosarcoma towards radio and chemotherapy is very low, they are broadly used as a neoadjuvant and/or adjuvant tumour treatment. In this context, doxorubicin in combination with other chemotherapeutic agents is the major drug applied to patients.[1,18]

Surgery is currently the standard treatment for fibrosarcoma. When diagnosed with pulmonary metastases, patients were treated with surgical resection unless a contraindication existed. Contraindications to resection included unresectable lung disease, extensive involvement of the mediastinum or chest wall, unresectable metastatic disease outside the thorax, or unresectable local recurrence. Patients were also deemed ineligible for resection if they had significant comorbid disease or insufficient pulmonary function to tolerate resection of all pulmonary disease.[10,19] Radiation therapy is not standard but can be recommended due to a variety of factors, which include tumors that are high grade and deep. This is reflected in one cohort as adjuvant radiation therapy was the most common additional treatment modality with 36.0% of the cohort receiving adjuvant radiation and 14.4% receiving neoadjuvant radiation. Chemotherapy, however, has no clearly defined guidelines for utility in fibrosarcoma patients.

Fibrosarcoma cells have been found to be associated with resistance to multiple chemotherapeutic agents that may help explain its potential lack of benefit. Thus, chemotherapy is less common, which is reflected in a cohort as only 4.3% received adjuvant chemotherapy and 4.0% received neoadjuvant chemotherapy. It has been suggested that neoadjuvant chemotherapy may provide more benefit than adjuvant chemotherapy in large, high-grade soft tissue sarcomas. However, a multivariable analysis reveals no significant mortality difference based on receipt of neoadjuvant chemotherapy. Similarly, no mortality benefit was found associated with neoadjuvant radiation. While patients receiving neoadjuvant chemotherapy or neoadjuvant radiation were more likely to have the higher-stage disease, the lack of mortality difference suggests there may not be any survival benefit to these neoadjuvant treatment options. Randomized controlled trials would need to be performed to evaluate the effectiveness of neoadjuvant treatments in FS more definitively; however, the research results fail to provide support for any mortality benefit associated with neoadjuvant chemotherapy or radiation. [2,9]

Chemotherapy is palliative for most patients with unresectable or metastatic disease. Ifosfamide and doxorubicin are routinely used in this setting; doxorubicin as a single agent is considered the drug of choice. Recent studies have reevaluated ifosfamide dosing,76 and high-dose ifosfamide with doxorubicin is commonly used for

younger patients with aggressive tumors; response rates of approximately 50 to 60 percent have been reported.77 It remains unclear whether this approach improves survival, which is on the order of 12 months in this situation.[4,20] Radiotherapy alone is considered when surgery is inappropriate or declined by the patient; it achieves rates of local control of 30 to 60 percent. More commonly, operative treatment is coupled with adjuvant radiotherapy on the basis of evidence demonstrating similar survival rates after limb-conserving surgery with radiotherapy and after amputation. Optimal timing remains unclear. A lower total dose of radiotherapy (50 Gy) is required when it is delivered preoperatively. Postoperatively,a total of 60 to 66 Gy is usually delivered to maximize killing of hypoxic tumor cells.[4]

Prognosis

Billingsley K, et al found that the overall median survival from diagnosis of pulmonary metastasis for all patients was 15 months. The 3-year actuarial survival rate was 25%. The ability to resect all metastatic disease completely was the most important prognostic factor for survival. Patients treated with complete resection had a median survival of 33 months and a 3-year actuarial survival rate of 46%. For patients treated with nonoperative therapy, the median survival was 11 months. A disease-free interval of more than 12 months before the development of metastases was also a favorable prognostic factor. Unfavorable factors included the histologic variants of liposarcoma and malignant peripheral nerve tumors and patient age older than 50 years at the time of treatment of metastasis. They emphasize that resection of metastatic disease is the single most important factor that determines outcome in these patients. Long-term survival is possible in selected patients, particularly when recurrent pulmonary disease is resected. Surgical excision should remain the treatment of choice for metastases of soft tissue sarcoma to the lung.[19]

CONCLUSION

Pulmonary metastases from extremity fibrosarcoma present a significant clinical challenge, with a median survival of less than one year following the onset of metastasis. This case illustrates the aggressive nature of fibrosarcoma, where pulmonary metastases led to rapid clinical deterioration and death within 20 days of hospitalization. Although surgical resection of pulmonary metastases can improve survival, extending it to around 33 months in select cases, the overall prognosis remains poor. A multidisciplinary treatment approach, combining surgery, chemotherapy, and radiotherapy, is essential due to the variable behavior of sarcomas. However, the lack of extensive data on pulmonary metastases from extremity fibrosarcoma complicates treatment strategies, further underscoring the need for early detection, personalized therapies, and ongoing research into effective management options for metastatic sarcomas. This case emphasizes the importance of vigilance and comprehensive care in managing patients with a history of fibrosarcoma.

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