# Subcutaneous Fibroblastoma Presenting Chest Wall's Benign Tumour: A Case Report

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## Abstract

DFs are now identified as several malignant tumours in addition to collagenous fibromas. Some benign soft tissue tumours are uncommon. It is crucial to accurately locate and treat DF since, although innocuous, it may be harmful in specific areas. This is why its diagnosis is crucial. As the case presented, the patient's pain was caused by a left sternoclavicular invasion. The patient's 53-year-old age presented a sign of discomfort. Because of this invasion, the patient's agony increased. Medical experts believed (DF) would be most likely to be discovered. Because several imaging tests, including an MRI, failed to rule out haemangiomas. The surgeon removed a large pectoralis major muscle tumour immediately after therapy. This happened after treatment, this mass had lobules. Haematology gave a lot of evidence that confirmed DF caused the aberrant blood cell count. The evidence included a hypocellular spindle-shaped lesion without necrosis or mitotic activity. Additionally, the stroma had significant collagenization. The disease has not returned for six months after a complete surgical excision, proving that the procedure was successful from the start. Given the details of this instance, a histology test is essential to diagnose DF. In contrast, this case summarizes the diagnosis process and discusses the similarities between this tumour and other soft tissue cancers. Additionally, this case summarizes the diagnostic procedure. Although diagnosing this illness may be difficult, it is nonetheless possible. This shows that comprehensive surgical excision is the most effective method and emphasizes the necessity for long-term surveillance to detect any illness recurrence. Because the illness has demonstrated it may recur. Many medical experts must collaborate to identify and treat (DF). Further study is needed on DF's causes and treatments.

**Keywords**: Desmoid Fibromatosis (DF), Surgical Excision, Soft Tissue Tumours, Histological Diagnosis, Collagenous Fibroma Recurrence.

## Background

First described by Evans in 1995 and reclassified as "collagenous fibroma (CF)" the following year by Nielsen et al.[1] desmoplastic fibroblastoma (DF) is an unusual benign tumour of soft tissues. In 2020, DF will be categorized by the World Health Organization as a fibroblastic/myofibroblastic tumour group.[2] DF as "semi-malignant" because it may act like a locally aggressive tumour. The reason Jaffe first labelled it as a "distinct entity" stems from this exact principle.[3] As a disease, DF mostly strikes males and is most common between the ages of 50 and 70. Lesions may appear anywhere on the body; however, they most often appear in the following areas: the shoulder girdle, back of the neck, upper back, abdomen, limbs, parotid gland, and, very rarely, the tongue and mouth.[4] It moves about, develops slowly, looks like a hard, painless mass beneath the skin, and often affects the face and skeletal muscles. DF is characterized by the presence of hypo-vascularity in a paucicellular tumour with a stroma made up of bland, spindle-shaped, or stellate-shaped fibroblastic cells that are sparsely dispersed. Lesions with a DF score does not exhibit necrosis and have little mitotic activity. The vast majority of DFs are completely harmless neoplasms, although sometimes they may become invasive.[4] Even with invasive DF, surgical excision is still the therapy of choice because to the lack of documented recurrence. The desmoplastic fibroblastoma is a benign and uncommon form of cancer that develops infiltrating in soft tissues.[5] In the majority of cases, malignant tumours manifest

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themselves in the subcutaneous tissues and skeletal muscle of the limbs.[3] The lump that patients often describe is one that is painless, slowly increasing, and has been there for a considerable amount of time. These tumours have a median diameter of three centimetres, although their normal sizes range from one to twenty centimetres.[3,5] There is no documented instance of the tumour returning locally or spreading to other parts of the body, and the treatment typically involves the removal of a small portion of the tumour.[1]

Desmoplastic fibroblastomas are comparable to other fibrous infiltrative tumours.[6] However, in contrast to desmoplastic fibroblastomas, other fibrous tumours are often treated with wide-margin surgical excision and have high rates of both local recurrence and metastasis. [7] As a result, it is of critical importance from a clinical standpoint to differentiate desmoplastic fibroblastoma from other forms of tumours by identifying the characteristics that set it apart. This is mostly due to the fact that there are no well-established imaging characteristics that are distinctive to this kind of tumour.[8] However, reliable preoperative diagnosis is still difficult to achieve. The distinction between desmoplastic fibroblastomas in the chest wall and the more frequent extra-abdominal desmoid-type fibromatosis is very important. Desmoplastic fibroblastomas in the chest wall are extremely rare. Here we detail the DF instance of a 47-year-old male who had a tumour grow on the wall of his chest. It was thought to be haemangioma at first, but a biopsy proved it was DF.

## Case Representation

In addition to suffering some localized discomfort, a patient who was 53 years old appeared with a complaint of left sternoclavicular edema that had been becoming bigger and more severe over the course of the preceding three weeks. The patient also reported an increase in the severity of the swelling. The patient additionally said that they were feeling some pain in the region where they were experiencing it. Additionally, the client said that they were experiencing some pain in that specific place. This was another item that they mentioned. However, the patient acknowledged being dependent on "Naswar" for a period of ten years, despite the fact that they denied having a substantial medical history. Even though they claimed not to have a medical history, this really did happen. According to the results of the physical examination, the patient exhibited a massive enlargement with lobulated borders and was unresponsive to pain and other symptoms. That was found out while the examination was going on. This protrusion was claimed to be located deep within the sternoclavicular ligament area, according to the evidence. Additional detailed inspection of the skin's surface would reveal no outward signs of inflammation or discoloration. That this was, in fact, the situation was common knowledge. According to imaging studies, such as magnetic resonance imaging (MRI), a large, clearly defined lesion was present under the skin's surface. According to the results, the imaging data backed up the study's findings. The lesion was 2.4 cm in height, 3.8 cm in width, and 6.2 cm in length at its longest point. Each one of them represents a lesion parameter. The lesion was found to be near the pectoralis major muscle, and there were signs of a bulge visible on the front of the torso. While the inspection was underway, something was found.

After the patient had already provided their informed permission for the surgical procedure, an excision that would be performed using surgical methods was set to take place. Since the radiological results were suspicious and there was a potential that the tumour was caused by cancer, it was decided to continue in this way.

During the course of the surgical surgery, the patient was under the effect of general anaesthesia. The purpose of the procedure was to remove the lump that was located on the patient's shoulders. An elliptical incision was made inside the boundaries of the bulge in accordance with the standard operating protocols for treatments of infections. Following this, a dissection was performed, commencing at the skin, and proceeding all the way into the subcutaneous tissue and the pectoralis major muscular muscle. This was done immediately after the previous step. During the course of the treatment, the surgeon made the discovery of a mass that had characteristics of being solid to firm, clearly defined, and measuring around 5 millimetres by 5 centimetres in size. This mass remained confined inside the muscular tissue of the patient throughout the duration of the surgical operation that was being performed. Both the tumour and the fibrous tissue that contained it were successfully removed from the body with the use of the painstaking procedure of dissection. It was successful in doing so. In order to ensure that the haemostasis procedure was conducted without any difficulties, a layer of closure was put to the wound immediately after the procedure was completed. As a result of the patient's successful completion of the rehabilitation process that followed the surgical operation, the patient was finally discharged from the hospital. In addition to being given a prescription for oral antibiotics and pain medication, they were also given the instruction to bring the prescription with them when they returned to their homes.

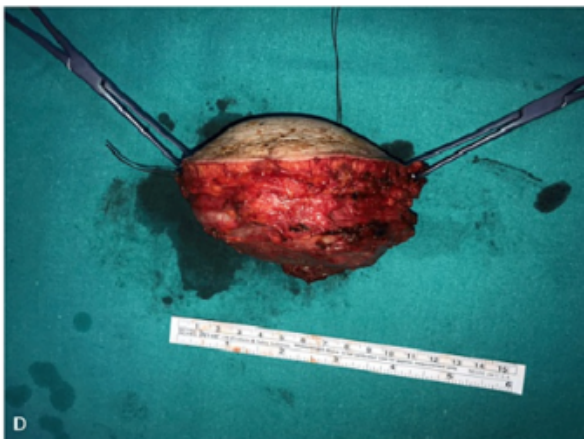


Figure 1: Shows the Removed Mass, Portions of the Surrounding Muscle, and a Piece of the Incision (1B).

As a consequence of the findings of the histopathology report, it was determined that a highly collagenized stroma- encased confined hypocellular spindle-shaped lesion was seen. This was consistent with the conclusions that were presented in the study. The following revelation of this occurred after the conclusion of a microscopic inspection of the material that had been removed. Following the completion of an analysis of the tumour cells, it was found that the cells included stellate nuclei that displayed features that were considered to be benign. Furthermore, no mitotic activity nor necrosis was seen to be present when the specimen was examined under a microscope. There was a tiny number of capillaries in the stromal matrix, and the walls of those capillaries were incredibly thin. Both of these characteristics were present. Using immunohistochemical diagnostic methods, it was determined that desmoplastic fibroma/fibroblastoma was a benign fibroblastic tumour. This was accomplished in order to establish the diagnosis. Throughout the course of the examination, it was found that there was no neoplastic infiltration, and there was a minimum clearance of 0.8 cm at the margins of the tumour. The data that was collected provided support for both of these results, which were verified. When all of the factors are considered, it is feasible to arrive at the conclusion that the tumour was effectively eliminated.

### Follow Up

During the first month after the procedure, the patient was visited for follow-up appointments once per week. These visits were scheduled at regular intervals. Appointments like this were planned to take place over the first month. Following the passage of that period of time, the patient was examined once per month for the remaining six months. Even after the follow-up examinations had been completed and the therapy had been completed, the patient did not exhibit any symptoms during the whole of the surgical procedure. There was no indication that the patient had a local recurrence, nor were there any postoperative complications that were readily apparent. The incision that was formed during the surgery went through a healthy healing phase, and the outcomes were good from the outside looking in. The incision was made throughout the procedure. Additionally, in spite of the fact that the characteristics of the benign tumour suggested that the risk of recurrence or metastasis was very low, it was nevertheless planned to do long-term monitoring.

## Discussion

Subcutaneous tumours in children are quite unusual. This category includes subgroups such as plexiform fibro-histiocytic tumours, dermatofibrosarcoma protuberans, giant cell fibroblastomas, angiomatoid fibrous histiocytomas, and dermoid cysts. Dermatofibrosarcoma protuberans is the most common kind of this tumour; it is an intermediate risk fibro-histiocytic tumour. The primary method of treating this tumour is surgical removal; however, in instances of advanced or metastatic disease, imatinib mesylate has shown encouraging results.[9] Desmoplastic fibroblastoma, also known as collagenous fibroma, is an uncommon benign fibroblastic/myofibroblastic tumour that often grows in the subcutaneous tissue of the upper limbs. Magnetic resonance imaging (MRI) reveals a distinct mass encircled by dense connective tissue and a discernible weak signal strength on all pulse sequences. The peripheral and septal eyesight are often improved with intravenous contrast. Histology reveals that the cells of the lesion are immersed in a stroma devoid of vascularity and may take on a variety of shapes, from spindle to stellate. Nuclear positive for FOS-like antigen 1 is strong and diffuse, which may be an indication of desmoplastic fibroblastoma.[1] Primary soft tissue neoplasms like DF are uncommon and benign, but they may develop slowly yet aggressively in some places.[7] Among males, the peak incidence rates are seen between the ages of 55 and 70.1, while DF may affect any bone in the body, the only case where it was found to originate from the chest wall is the one recorded thus far.[10] It may be difficult to make an accurate preoperative diagnosis of benign or malignant spindle cell neoplasms of soft tissues due to the high number of cases that are clinically similar. On radiographs, DF may be seen with haemangioma, low-grade osteosarcoma, eosinophilic granuloma, and fibrous dysplasia, among other bone disorders.[10] Since DF might be mistaken for hamartoma, proper testing is essential for a definitive diagnosis.

Here we have an instance where haemangioma was mistakenly identified in a patient who complained of edema. Abnormal signal intensity was detected by magnetic resonance imaging (MRI) of the enlarged area, which revealed a subcutaneous lesion at the level of the medial end of the clavicle. There were no skeletal abnormalities detected in the left clavicle, and there was no buildup of fat in the subcutaneous fat in that location. It is very probable that the lesion is benign, namely a haemangioma of the soft tissues, according to the uniform increase seen on post-contrast imaging. A T2/T1W hyperintense area inside the C7 and D4 vertebral bodies, haemangiomas, was seen in the visible cervical spine, which agrees with the MR findings.

The lump was sent for a biopsy after its removal. The microscopic features of hamartoma, which may seem like DF, did not match those reported in the research by Ali et al., thus we did not include it in our differential diagnosis. Instead, we found adipocytes and isolated chondrocytes enclosed in a rich matrix that arises from the lacunar gaps. Similar histological findings were reported for their individual cases.[11] The cut surface of the nodule was solid and grey, white in consistency. Under the microscope, the lesion appeared as a hypocellular spindle with a well-defined border and a densely collagenized stroma. The nuclei of the cells were plain and stellate, and they did not undergo mitosis. The stroma was covered with tiny vascular structures. In the surrounding areas, neither

infiltration nor necrosis were seen. Based on these findings, the diagnosis of DF was solidified. The bulk of studies have shown that MR scans offer nothing to help narrow down a diagnosis. Since the tumour signal intensities are not specific, MR imaging is thought to be ineffective for DF characterization.[2] This could explain why MRI failed to differentiate between DF and haemangioma in our case. With a local recurrence incidence of 40% or more after curettage or intralesional excision, total excision is the treatment of choice for DF. We are pleased to report that six months after tumour removal surgery, our patient shows no signs of recurrence.

## Conclusion

A tumour called desmoplastic fibroma, sometimes called fibroblastoma, may be hard to diagnose and much more challenging to cure. Furthermore, it is quite rare. The fact that the tumour was found in an unusual location, the sternoclavicular area makes it very clear that this is really the case. Medical staff must be on the lookout for benign tumours while treating patients who display certain patterns of edema during treatment. Reason being, even benign cancers have the potential to metastasize, or spread to other organs. This must be carefully considered in cases when the individual in issue has a history of risk factors, such as a substance abuse history. The use of substances in the past is one example of such a risk factor. Surgeons, pathologists, and radiologists must collaborate as a multidisciplinary team to perform the diagnostic and treatment procedures necessary for these rare diseases. It is critical to do further study to identify the causes of fibroblastoma and desmoplastic fibroma and the best ways to treat these tumours.

Desmoplastic fibroma (DF) detection may be challenging even with imaging methods widely believed to be diagnostic. Magnetic resonance imaging is one method that falls under this category. People with tumours that harm soft tissues, including haemangiomas, are more prone to exhibit these traits compared to those with other types of cancer. Therefore, to achieve the aim of potentially arriving at the right diagnosis, a histological study is necessary. If this very uncommon form of cancer is to be effectively treated, a correct diagnosis is crucial. This case's characteristics lead us to believe that DF has many of the same traits as other benign neoplasms. Complete excision, a surgical procedure that removes the tumour and all surrounding tissue, has been shown to be the most effective surgical therapy for patients diagnosed with DF. This specific line of reasoning gives it a lot of promise as an alternate kind of treatment. Regardless, during the whole post-operative follow-up period, no patients experienced recurrences. The best way to detect issues and prevent their recurrence is to maintain tabs on patients throughout time. Doing this regularly is crucial. In order to improve patient outcomes, more study into the causes of (DF) and evaluation of the potential for developing new therapeutic options are crucial.

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