

Rapidly growing chest wall mass mimicking a malignant tumor: proliferative myositis

Malign tümörü taklit eden hızlı büyüyen göğüs duvarı kitlesi: Proliferatif miyozit

Makbule Ergin,¹ Feride Sapmaz,² Ruhiye Cevit,³ İsmail Ergin,⁴ Ali Yeginsu¹

¹Department of Thoracic Surgery, Medicine Faculty of Gaziosmanpaşa University, Tokat;
Departments of ²Thoracic Surgery, ³Pathology, Sivas Sultan 1. İzzettin Keykavus State Hospital, Sivas;
⁴Department of Radiology, Cevdet Aykan State Hospital, Tokat

Proliferative myositis is a rare tumor that rapidly grows in muscles. A 60-year-old male patient with a firm chest wall tumor suggestive of a malignant lesion was referred to our clinic. The tumor was surgically resected after the confirmation of its benignity by frozen sections. The histological findings confirmed the diagnosis. In conclusion, proliferative myositis is an unusual, benign, pathological entity. Its clinical and radiological features may, however, simulate a malignant process, and a simple local excision is satisfactory for diagnosis and treatment.

Key words: Chest wall mass; proliferative myositis; thoracic wall; tumors.

Proliferative myositis (PM) is a rare, inflammatory tumor that is often misdiagnosed as sarcoma. The clinical and imaging features of PM are nonspecific and variable, and these lesions can easily be misdiagnosed as malignant. The possibility of misdiagnosis is especially great in cases having rapid progression. Simple local excision is usually recommended in cases not showing signs of self-regression. We present a case of PM mimicking a malignant tumor of the chest wall and discuss this uncommon tumor.

CASE REPORT

A 60-year-old man presented to the thoracic surgery department for evaluation of a painful, rapidly-enlarging chest wall mass that had increased in size during the past four weeks. He did not have a history of trauma. Upon physical examination, there was a 3x3 cm rather hard, fixed mass at the right lateral side of the chest wall over the 8-10th ribs. Routine laboratory tests were within normal limits. A computed tomographic scan of the chest

Proliferatif miyozit kasta hızlı büyüyen nadir bir tümördür. Altmış yaşındaki bir erkek göğüs duvarında malign lezyon düşündüren sert bir tümör ile kliniğimize sevk edildi. Frozen kesitleri ile lezyonun selimliği gösterildikten sonra tümör cerrahi olarak rezeke edildi. Histolojik bulgular tanıyı doğruladı. Sonuç olarak, proliferatif miyozit nadir bir selim patolojik antidedir. Bununla birlikte, klinik ve radyolojik özellikleri malign bir süreci taklit edebilir ve basit bir cerrahi eksizyon tanı ve tedavi için yeterlidir.

Anahtar sözcükler: Göğüs duvarı kitlesi; proliferatif miyozit; toraks duvarı; tümör.

demonstrated a 3x2 cm mass over the 8-10th ribs and inside the latissimus dorsi muscle (Figure 1). At surgery, a 9x5 cm mass was totally excised (Figure 2). A preoperative biopsy was not obtained, but a frozen section biopsy was performed before resection. The limits of the tumor in the muscle layer were not certain, and, to obtain complete resection, a partial muscle resection was performed. The resulting defect was not reconstructed. Final pathologic examination confirmed the diagnosis of proliferative myositis. Spindle-shaped muscle cells with intervening lymphoplasmacytic infiltrates and collagenous stroma were found to be consistent with the above diagnosis (Figure 3). At the six-month follow-up, the patient was well and free of recurrence.

DISCUSSION

Proliferative myositis is an uncommon nonneoplastic reactive lesion of soft tissue characterized by a benign clinical course. The etiology of PM is obscure, but subclinical trauma or ischemia are suspected as being

Received: April 8, 2008 *Accepted:* September 13, 2008

Correspondence: Ali Yeginsu, M.D. Gaziosmanpaşa Üniversitesi Tıp Fakültesi Göğüs Cerrahisi Anabilim Dalı, 60500 Tokat, Turkey.
Tel: +90 356 - 212 95 00 / 1289 e-mail: yeginsu@hotmail.com

initiating events.^[1] Cases presenting with severe pain and other constitutional symptoms, especially those following injury, have been reported.^[2] The usual clinical presentation is of a painless, ill-defined, rapidly growing, firm, solitary lump in or adjacent to the muscles of the shoulder, thorax, thigh, or neck.^[3] The lesion is usually 3 to 6 cm at presentation and is typically firm and deep-seated. Adults are usually affected with a peak incidence between 40 and 70 years of age.^[2] Proliferative myositis may also involve the soft tissues of the head and neck. In the series of 33 cases reported by Enzinger and Dulcey,^[1] 18 involved the shoulder and arm whereas only four cases arose from the anterior chest wall.

Proliferative myositis is a rapidly enlarging tumor of the soft tissue and may suggest a malignant process that is often confused with sarcoma. The mass often evolves over the course of a few weeks and may double in size over several days.^[3] Although their rapid growth and often bizarre microscopic appearance may suggest an aggressive course, these pseudosarcomas are clinically benign and rarely recur after subtotal excision. Consequently, the diagnosis always depends on histological evidence. Proliferative myositis is uncommon with fewer than 100 cases reported in the literature. The first three cases were presented in abstract form by Ackerman in 1958.^[4] The disease was subsequently named by Kern, who reported seven cases in 1960.^[5] Enzinger and Dulcey^[1] reported the largest series of 33 cases in 1967.



Figure 1. Computed tomographic scan demonstrating mass (marked).

The condition usually involves the muscles in a diffuse manner. Proliferative myositis usually differs from other pseudosarcomatous lesions, such as nodular fasciitis or myositis ossificans, principally by its ill-defined margins. Lesions that arise from the subcutaneous tissue or from intermuscular fascia show the same characteristic histological features; hence, they are considered a fascial or subcutaneous variant of PM.^[3]

Several microscopic features are characteristic of PM. The alternation of proliferative connective tissue surrounding viable muscle fibers often gives rise to the so-called checkerboard effect which is characteristic of the disease.^[5] These cells are universally diploid on flow cytometry, lending further evidence to the belief that these cells are not malignant.^[5]

The radiologic description of this lesion in the literature is scarce. Gysen et al.^[6] described the CT

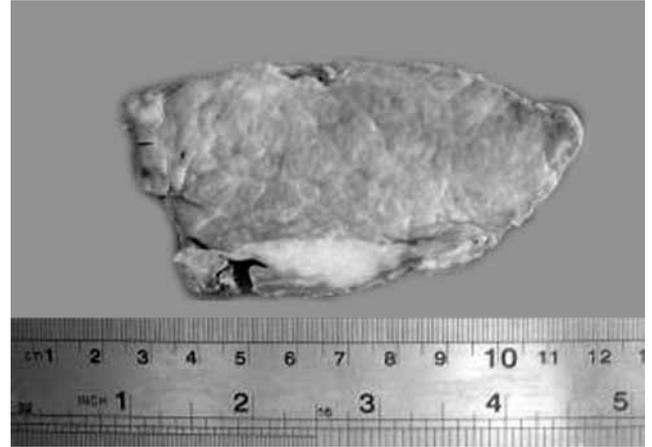


Figure 2. Intraoperative photograph showing the mass after total excision.

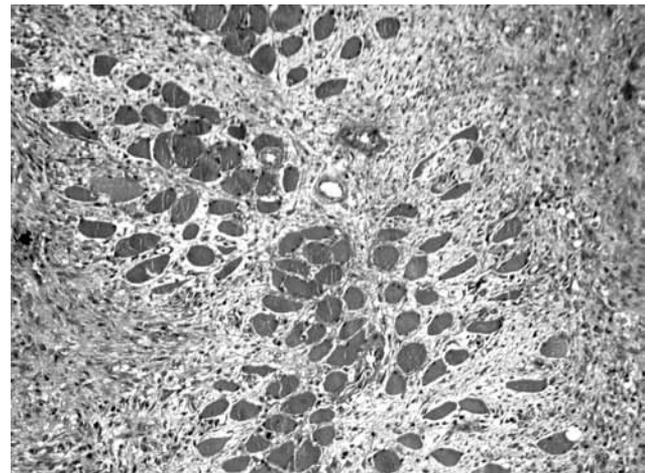


Figure 3. Spindle-shaped muscle cells with intervening lymphoplasmacytic infiltrates and collagenous stroma, consistent with proliferative myositis (H-E x 200).

features of a rapidly growing case of PM. A computed tomography scan showed a heterogeneous left psoas mass showing peripheral contrast enhancement with evidence of extension to other adjoining muscles.

Because the clinical and imaging features of PM are nonspecific and variable, these lesions can easily be misdiagnosed as malignant. In Enzinger and Dulcey's^[1] study of 33 cases, 14 cases were misdiagnosed either as premalignant or malignant neoplasms, such as rhabdomyosarcoma, fibrosarcoma, or liposarcoma. Eleven of these were treated by radical surgery. Reports of cases in children are extremely uncommon. Probably the first reported case of PM in a pediatric patient was in a seven-month-old female infant published by Pasquel in 1988.^[7]

The prognosis for patients with PM is excellent. Simple local excision is usually recommended in cases not showing signs of self-regression, in lumps with pain or tenderness, for cosmetic purposes, and in those causing pressure effects or vascular encasement. Although surgery is often performed for diagnosis and removal of a cosmetically disfiguring mass, recurrence even after simple excision is extremely rare. Indeed, with a follow-up period of one to 16 years, no recurrences were noted in the series reported by Enzinger and Dulcey.^[1] However, among the 33 patients reported, 14 had been misdiagnosed as sarcoma and had undergone radical resection. In contrast to sarcoma, PM rarely invades normal tissue and can usually be readily excised. The erosion of the thoracic cage is distinctly uncommon. The majority of patients, therefore, can be spared radical resection if the diagnosis has been made with certainty.

In conclusion, proliferative myositis is an unusual, well-recognized benign pathological entity. Its clinical

and radiologic features may, however, simulate a malignant process, but a simple local excision is imperative for diagnosis and treatment. The clinical importance of PM is the risk of confusion with other tumors, such as sarcomas, which may result in radical chest wall operations although treatment is a simple and even subtotal excision.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Enzinger FM, Dulcey F. Proliferative myositis. Report of thirty-three cases. *Cancer* 1967;20:2213-23.
2. Orłowski W, Freedman PD, Lumerman H. Proliferative myositis of the masseter muscle. A case report and a review of the literature. *Cancer* 1983;52:904-8.
3. Demir MK, Beser M, Akinci O. Case 118: Proliferative myositis. *Radiology* 2007;244:613-6.
4. Ackerman LV. Extra-osseous localized non-neoplastic bone and cartilage formation (so-called myositis ossificans): clinical and pathological confusion with malignant neoplasms. *J Bone Joint Surg [Am]* 1958;40:279-98.
5. Kent MS, Flieder DB, Port JL, Altorki NK. Proliferative myositis: a rare pseudosarcoma of the chest wall. *Ann Thorac Surg* 2002;73:1296-8.
6. Gysen M, Stroobants S, Mortelmans L. Proliferative myositis: a case of a pseudomalignant process. *Clin Nucl Med* 1998;23:836-8.
7. Pasquel P, Salazar M, Marvan E. Proliferative myositis in an infant: report of a case with electron microscopic observations. *Pediatr Pathol* 1988;8:545-51.