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Primary Abdominal Wall Actinomycosis: A Case Report

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1. Abstract

Actinomycosis of the anterior abdominal wall is a rare chronic infection that often mimics malignant or inflammatory soft tissue tumors, making diagnosis challenging. We report the case of a 50-year-old man with a slowly enlarging right lower lateral chest wall mass present for six years. Imaging revealed an 8 cm lesion involving the right lower thoracic region with extension into the abdominal wall and rib involvement. The patient underwent en bloc surgical resection of the mass including involved muscles, ribs, and a portion of the diaphragm, followed by primary reconstruction. Histopathological examination confirmed actinomycosis. Postoperative recovery was uneventful, and long-term antibiotic therapy was initiated. This case highlights the diagnostic difficulty and the importance of surgical and medical management in primary abdominal wall actinomycosis.

2. Keywords: Actinomycosis; abdominal wall; chest wall mass; surgery

3. Introduction

Actinomycosis is a rare, chronic suppurative infection caused primarily by Actinomyces israelii, an anaerobic gram-positive organism that normally resides in the oral cavity, gastrointestinal tract, and genitourinary tract. Disease occurs when mucosal barriers are disrupted, allowing invasion of deeper tissues.

The cervicofacial region is the most commonly affected site, followed by the abdominopelvic region, usually secondary to prior surgery or intra-abdominal infection. Primary actinomycosis of the anterior abdominal or chest wall without visceral involvement is extremely uncommon, with only a limited number of cases reported in the literature. Because it frequently presents as a slowly growing mass, it is often misdiagnosed as a neoplasm.

4. Case Report

A 50-year-old male presented with a progressively enlarging mass over the right lower lateral chest wall, first noticed six years prior to admission. The lesion was associated with intermittent localized chest discomfort. There was no history of trauma, surgery, infection, or systemic disease. Physical examination and routine laboratory tests were within normal limits.

Computed tomography (CT) of the chest and abdomen demonstrated an approximately 8 cm heterogeneous mass arising from the right lower chest wall with extension into the abdominal wall and involvement of adjacent ribs. A bone scan showed increased uptake in the right 9th rib, suggesting osseous involvement.

Although image-guided biopsy was recommended, the patient declined and opted for surgical excision for definitive diagnosis and treatment.

4.1. Surgical Findings

Under general anesthesia, a transverse incision was made over the lesion. Intraoperative findings revealed a firm, fibrotic, and infiltrative mass involving the latissimus dorsi, external oblique, and intercostal muscles, with extension into the 9th and 10th ribs and partial involvement of the diaphragm.

An en bloc resection of the mass was performed, including involved muscles, ribs, and a small portion of the diaphragm. The resulting defect was repaired primarily without the use of prosthetic material.

4.2. Pathological Findings

Gross examination showed a fibrotic mass with multiple necrotic areas. Histopathological analysis revealed characteristic sulfur granules composed of filamentous bacterial colonies surrounded by neutrophilic inflammation, consistent with actinomycosis.

The patient recovered uneventfully and was discharged on postoperative day 7. Due to a positive penicillin allergy test, long-term therapy with minocycline was initiated.

5. Discussion

Actinomycosis is a rare chronic infection characterized by slowly progressive, suppurative, and fibrotic tissue invasion. It often forms mass-like lesions that mimic malignancy, tuberculosis, or chronic inflammatory tumors.

Primary involvement of the chest or abdominal wall is extremely rare and usually occurs without preceding intra-abdominal disease or surgery. The diagnosis is challenging due to nonspecific clinical presentation, poor culture yield, and non-diagnostic imaging findings. In most cases, definitive diagnosis is achieved only after surgical excision and histopathological examination.

The hallmark histological feature is the presence of sulfur granules, which represent aggregates of Actinomyces organisms. Culture positivity rates are low, and therefore histology remains the gold standard for diagnosis.

5.1. Management

Treatment requires a combination of:

1. Surgical excision – necessary for diagnosis and removal of

ANNALS OF MEDICAL AND CLINICAL CASES

infected and fibrotic tissue, especially in large or invasive lesions
2. Long-term antibiotic therapy – high-dose penicillin is standard; alternatives such as tetracyclines are used in allergic patients

Complete surgical excision, when feasible, is often curative when combined with prolonged antibiotic therapy. In this case, en bloc resection allowed both diagnosis and effective treatment.

6. Conclusion

Primary abdominal wall actinomycosis is a rare entity that can closely resemble malignant soft tissue tumors. Preoperative diagnosis is difficult due to nonspecific clinical and radiological findings. Surgical excision remains essential for definitive diagnosis, and prolonged antibiotic therapy is critical for preventing recurrence. Clinicians should consider actinomycosis in the differential diagnosis of chronic chest or abdominal wall masses.

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