

CASE REPORT

Revisiting the evolution of tuberculosis therapy: historical reflections in the modern era

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Abstract

Management of tuberculosis (TB) has witnessed several changes over the past decades. While medical management is now the mainstay of therapy, surgical intervention was once the only treatment option physicians had to offer. We discuss some historical surgical procedures and take a quick glance at the evolution of TB therapy. We note the importance of adequate history-taking and the implications of what seemingly obsolete techniques may have in contemporary practice. We also highlight the re-emergence of surgical options in the modern era with the rise of multidrug-resistance.

INTRODUCTION

An incidentally discovered lung mass can be catastrophic news to patients. Malignancy usually tops the list of differentials and tissue diagnosis remains the gold-standard. A thorough history, in rare circumstances, may spare the patient invasive procedures.

CASE REPORT

An 86-year-old gentleman with a past medical history of chronic obstructive pulmonary disease, pulmonary tuberculosis (TB) diagnosed and treated in the 1950s, and localized prostate cancer presented to the hospital with a 3-day history of productive cough, shortness of breath, and wheezing. He denied any fevers, chills, chest pain, night sweats or unintentional weight loss. He had a 40-pack-year smoking history but quit over 40 years ago. On physical exam, he was afebrile with normal vital signs, except for noted tachypnea. Focused upper chest exam revealed a large, non-mobile, left supraclavicular

globular mass visible under the skin. On lung auscultation, he had diffuse expiratory wheezing and bilateral basilar crackles with diminished breath sounds over the left upper lobe. Laboratory work-up was significant for an elevated white blood cell count of 20.6 K/ μ L with a left shift and normocytic anemia of 9.2 g/dL. A chest X-ray was notable for a large, partially calcified lung mass (Fig. 1). A chest CT-scan similarly demonstrated a large, peripherally calcified soft tissue mass in the left upper chest wall, with destruction of adjacent ribs (Fig. 2). Differential diagnoses at that point included osteosarcoma, metastatic prostate cancer and mesothelioma, among many other possibilities. A tissue biopsy was deemed necessary. However, we sought to obtain a more thorough history and on further probing, our patient reported that he had underwent surgery in the 1950s for TB.

DISCUSSION

Historically, prior to the advent of anti-tuberculous medications, several surgical techniques were employed for treatment

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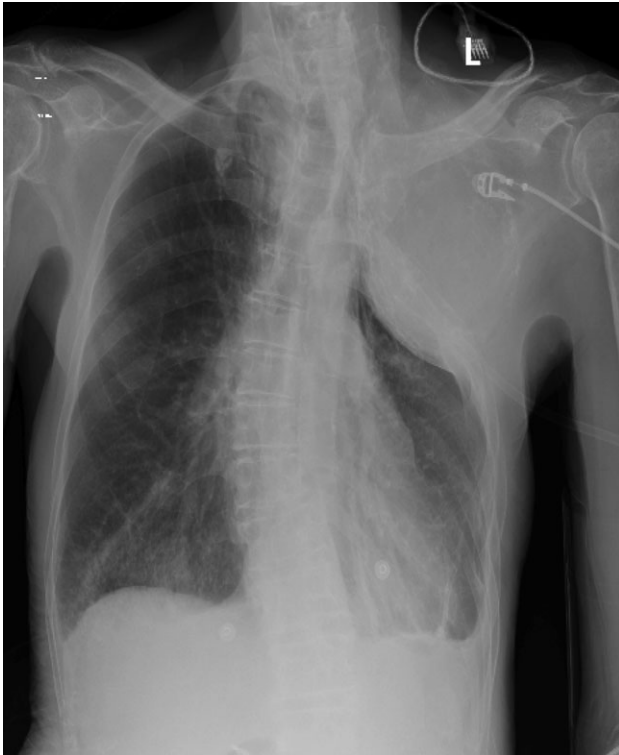


Figure 1: Chest X-ray notable for a large, partially calcified lung mass, measuring $\sim 16.5 \times 10$ cm, projecting over the left lung apex and likely external to the lung parenchyma.



Figure 2: CT-scan demonstrating a large, peripherally calcified soft tissue mass in the left upper chest wall, measuring $9.4 \times 11.8 \times 14.7$ cm, with destruction of adjacent first to third ribs.

of cavitary lung TB, including artificial pneumothorax, lobectomy, wedge resection, phrenic nerve crushing and collapse therapies, comprising thoracoplasty and plombage [1–3]. Artificial pneumothorax techniques were first performed on rabbits in the 1820s by James Carson, a Liverpool physician-physiologist. The concept had been scrutinized thereafter until the 1880s, when Carlo Forlanini, an Italian physician, pioneered the technique in humans and was later nominated for the Nobel prize in Medicine [4].

These efforts, with the concept of depriving mycobacteria from oxygen, paved the road for collapse therapies, including thoracoplasty and plombage. Thoracoplasty involves surgical resection of one or more ribs, thereby actively forcing the diseased lobe to collapse and allowing rapid healing [1, 2]. Plombage, another form of collapse therapy, entails surgically creating a cavity under the upper chest wall ribs and insertion of an inert material into the pleural cavity. Different materials were used with resultant varying radiological findings [1, 2]. Plombage was practiced from the 1930s to the mid-1950s and became obsolete with the advent of potent anti-tuberculous medications [2].

The discovery of Streptomycin in 1944 with subsequent development of Rifampicin and other anti-TB medications in the 1960s radically transformed therapeutic protocols by minimizing the role of surgery and improving the prognosis of the disease [2, 5]. However, in areas with high prevalence of TB and with the emergence of multidrug-resistant (MDR) or extensively drug-resistant (XDR) TB strains, the use of surgical interventions has regained momentum in the modern era. These techniques remain as an adjunct to medical therapy when it does not provide complete cure [3, 5–9].

Although in specific patients, surgery may provide superior results compared to medical therapy alone, careful case selection is warranted in addition to weighing the risks and hoped benefits

of these surgical techniques, since they are not free from complications [1, 3, 6–9]. Indications for surgery include failure of medical therapy, localized lesions and MDR/XDR TB, provided adequate pulmonary reserve. The World Health Organization released a consensus report in 2014 on the role of surgery in the treatment of pulmonary TB, with a comprehensive summary of surgical indications and contraindications in contemporary practice [10].

CONCLUSION

Given the historical time frame, it is not unlikely that we would encounter similar cases among elderly patients in today's practice. Based on the clinical history and imaging findings, our patient most likely underwent an upper-posterior extrapleural thoracoplasty, possibly combined with plombage. This case demonstrates how collapse therapy for pulmonary TB can mimic a mass lesion. A proper thorough history is always advisable.

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CONFLICT OF INTEREST STATEMENT

No conflicts of interest.

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ETHICAL APPROVAL

No ethical approval was required.

CONSENT

Although no patient identifiers were used, the patient provided his informed consent.

GUARANTOR

Ahmed A. Kolkailah, MD.

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