# Parotid Actinomycosis Mimicking Metastatic Lymphadenopathy

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***ABSTRACT***

*We present a patient with actinomycosis of the parotid, as confirmed by histology, and discuss the challenges involved when clinical and radiological findings are highly indicative of metastatic malignancy. Early treatment with antibiotics is indicated in fungating or infected masses and exclusion of malignancy by histology is often needed.*

**Keywords**: Cervicofacial actinomycosis, metastatic cancer, parotid

# Actinomicosis de la Parótida Mimetizada como Linfadenopatía Metastásica

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***RESUMEN***

*Se presenta a un paciente con actinomicosis de la parótida, confirmada por histología y se discuten los retos que se presentan cuando los resultados clínicos y radiológicos son altamente indicativos de una malignidad metastásica. El tratamiento temprano con antibióticos se indica cuando hay masas fungosas o infectadas, y a menudo se requiere excluir la posibilidad de una malignidad mediante la realización de un estudio histológico.*

**Palabras claves:** Actinomicosis cervicofacial, cáncer metastásica, parótida

**West Indian Med J 2011; 60 (3): 349**

## INTRODUCTION

Nodal involvement at initial presentation of head and neck cancer has been reported to be as high as 30%, though advanced involvement (N3) is much less common (1). In rare circumstances, atypical infections can mimic metastatic malignancy and even with extensive haematological, microbiological and radiological investigations, the true diagnosis can remain elusive. We present a case of cervicofacial actinomycosis involving the parotid gland and upper neck which clinically and radiologically mimicked lymph node metastasis from a possible head and neck primary.

## CASE REPORT

A 68-year old man presented with a four-week history of a rapidly growing mass over his right parotid region. There was no predisposing illness, injury or dental treatment. He had a long history of smoking, heavy alcohol consumption (more than fifty units a week) and suffered previously from primary polycythaemia and pulmonary tuberculosis. The mass was minimally tender with overlying discharging skin papules. Apart from trismus, the rest of the ear, nose and throat (ENT) examination was unremarkable (no cervical lymphadenopathy or intact facial nerve). The provisional diagnosis was nodal metastasis from an unknown head and neck primary carcinoma.

Haematological tests were normal (white cell count: 7.2 x $10^6$/L, neutrophils: 4.5 x $10^6$/L, normal biochemistry). Culture of a fine needle aspirate grew skin flora and cytology did not demonstrate any evidence of malignancy. Ultrasound examination revealed a necrotic cystic lesion in the parotid tail with inflammatory changes in the soft tissues, interpreted as extracapsular spread of disease from a malignant nodal deposit. Contrast enhanced computed tomography (CT) scan appearances were similar (Fig. 1). A slightly bulky right palatine tonsil was thought to be suspicious for a primary malignant focus.

It was then decided to proceed with an incisional biopsy of the mass, which revealed a single colony of actinomyces-like organisms (Fig. 2) with infiltration of the sur-

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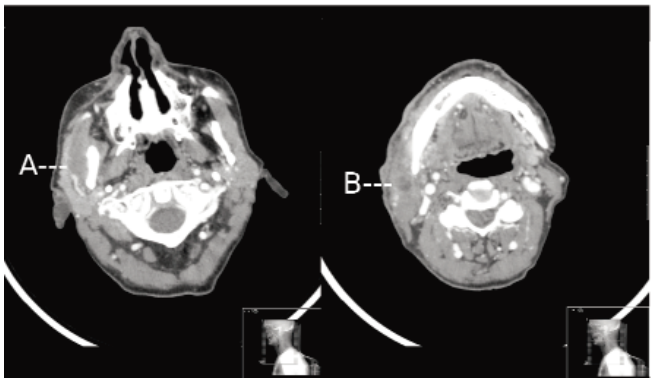


Fig. 1: The right parotid salivary gland is inflamed and enlarged with inflammation extending into the masseter muscle anteriorly (A). Focal areas of cystic change are seen within the parotid salivary gland. Low attenuation peripherally enhancing lesion with surrounding inflammatory changes in the fat is seen in the tail of the parotid gland (B). This appears to extend and become confluent with the right sternocleidomastoid along its anterior border. Appearances are consistent with right level 2 lymphadenopathy.

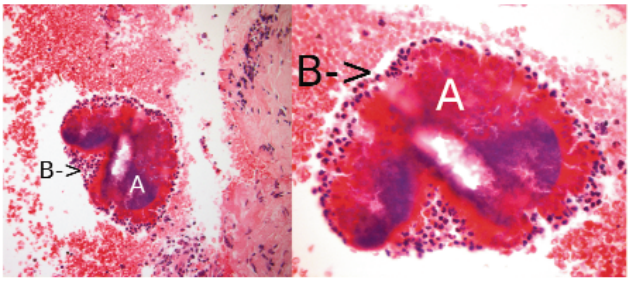


Fig. 2: The histology shows a single colony of actinomycetes-like organisms (A) surrounded by acute inflammatory cells (neutrophil polymorphs) (B) in a background of a mixed inflammatory infiltrate and degenerate myocytes. The appearances are most in keeping with an actinomycotic abscess. (Haematoxylin and eosin; Left: 200x, Right: 400x)

rounding soft tissues. The patient was originally treated with flucloxacillin and subsequently with metronidazole. This resulted in rapid resolution of the inflammatory mass in four weeks.

## DISCUSSION

Cervicofacial actinomycosis is a polymicrobial infection which is difficult to diagnose (2, 3). It is caused by gram positive non-acid fast anaerobic or micro-aerophilic bacillus of the genus actinomyces, often with superimposed infection by other bacteria, such as *S aureus* (4).

Clinical manifestations include hard, sometimes tender swellings, with sinus tracts discharging yellow fluid at later stages. History of trauma, dental treatment or bad oral hygiene is usual but not necessary, as demonstrated in this case. Haematological investigations are likely to be non-specific (may reveal slight leucocytosis and elevated C-reactive proteins), while cultures may not reveal any pathogens apart from the presence of 'sulphur' granules. Specimens should therefore be sent for microscopy, Ziehl-Neelsen staining, tuberculosis and fungal cultures (5).

Radiological investigations may show an infiltrating soft tissue mass that mimics necrotic nodal metastasis (6). In head and neck cancer, nodes larger than 10 mm or with central necrosis are considered involved, though nodal necrosis is also seen in suppurative lymphadenopathy (7). Regional lymphadenopathy is rare in actinomyces infection and its absence could help differentiate actinomycosis from malignancy (6). In this case, however, the infection was so widespread that it was interpreted as level 2 lymphadenopathy (Fig. 1) leading to a radiological diagnosis of malignancy.

Treatment is medical with prolonged high dose antibiotics. An aminopenicillin together with a B-lactamase inhibitor is the treatment of choice (4) in order to cover the other organisms present. The patient's response to metronidazole is an indication of the multibacterial nature of actinomycosis infection since metronidazole does not seem to have any antimicrobial activity against the actinomyces species (8). As demonstrated in this case, surgery may be necessary especially if the diagnosis is still disputed (9, 10).

Although a rare disease, cervicofacial actinomycosis in the head and neck will continue to challenge physicians and surgeons. Exclusion of a head and neck cancer is of utmost importance in the presence of fungating masses but one may consider early antimicrobial treatment while all the necessary investigations are carried out.

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