

## Bezold's abscess

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### Abstract

Since the introduction of antibiotics for the treatment of suppurative otitis media the incidence of complications from this disease has been greatly diminished. Acute mastoiditis, resulting in the deep neck abscess known as Bezold's abscess, has become very rare. A case of Bezold's abscess is presented with special reference to the clinical presentation and pathogenesis of this now uncommon condition. The variations in the routes of spread of the abscess in the fascial planes of the neck are described in detail. The difference between what is known today as a Bezold's abscess and the abscess that Bezold described in the early part of this century are presented.

### Introduction

Friedrich Bezold (1824–1908) (Fig. 1) was a German otologist. What is known today as a Bezold's abscess is quite different to that which Bezold himself described.

In November 1881, Bezold published a paper describing the effects of pus escaping through the medial side of the mastoid process into the incisura digastrica (digastric groove) and forming an abscess. This variety of abscess was known as Bezold's mastoiditis. In his classic description, the pus spread along the digastric muscle to the chin, filling the retromaxillary fossa, and along the course of the occipital artery. If left untreated further deep extensions occurred due to the resistance to direct extension by sternomastoid, trapezius and splenius muscles. Bezold observed that pus tracked along these muscles and, if it reached the short deep muscles of the neck, might extend to the transverse processes of the vertebrae as low as the second thoracic vertebra. Because of this widespread extension, Bezold was not surprised to find cases in which the disease process had been going on for many months, fatalities occurring when there was extension to vertebrae or the skull base.

Bezold distinguished this form of abscess from the more common variety arising from erosion of the outer cortex of the mastoid process. He observed that his patients often presented with deep neck abscesses months after an attack of acute otitis media.

Present day literature describes a Bezold abscess as an abscess arising within the substance of the sternomastoid muscle following the spread of pus through the tip of the mastoid process (Cheesman, 1979). It is interesting to note how this differs from the very extensive route of spread originally described by Bezold.

### Case report

A 42-year-old man presented to his general practitioner with a three-month history of right-sided otorrhoea. Following several days of oral antibiotic therapy he was referred to our clinic with a tender swelling in the right side of the neck, associated with some difficulty in talking and swallowing. He was pyrexial

(38.5°C) and had an obvious right-sided neck swelling extending from the mastoid tip to the mid-point of the sternomastoid muscle. It was firm, tender, non-fluctuant and 5 cm wide. There was marked tenderness over the mastoid process and antrum. Following aural toilet of the pulsatile purulent discharge an infected attic cholesteatoma was easily seen. He was admitted to our hospital, commenced on a broad spectrum antibiotic and prepared for immediate surgery.

Radiological investigation showed bilateral sclerotic mastoids with a cholesteatoma in the right middle ear cleft. At surgery the middle ear and mastoid cavity were found to contain cholesteatoma and granulation tissue. There was erosion of the mastoid tip which communicated with the neck abscess. A modified radical mastoidectomy was performed. The abscess was incised over its most superficial part. The pus was found to be confined to within the sheath of the sternomastoid muscle, and approximately 30 ml were evacuated. A corrugated drain was inserted. Cultures from the abscess were sterile. The patient was kept on intravenous antibiotic therapy for a total of 10 days and made an uneventful recovery.

### Discussion

In the pre-antibiotic era mastoiditis complicated up to 50 per cent of cases of otitis media (Mygind, 1910). Bezold found that 20 per cent of these cases went on to develop the extensive abscess that he originally described (Philips, 1913). In these cases *Pneumococcus* was the most common causative organism. Since the advent of antibiotics complications of suppurative otitis media have diminished. Palva and Pulkkinen (1959), found that 0.4 per cent of cases of otitis media developed mastoiditis. Edison (1980) found that four per cent of cases of otitis media developed a subperiosteal abscess. Smouha *et al.* (1989) had an unusual cluster of five cases of deep neck abscesses of otogenic origin in the two year period of 1982 to 1984. In one of these, the abscess was confined within the sheath of the sternomastoid muscle as in our case. The other four cases had more extensive routes of spread of the abscess similar to the classic description of the abscess by Bezold. Despite this unusual cluster of cases, Bezold's abscess remains rare with only seven cases being reported in the literature since 1975.

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Accepted for publication: 30 April, 1991.



FIG. 1  
Friedrich Bezold, 1824–1908.

The incidence of intracranial complications of otitis media has also been greatly diminished following the introduction of antibiotics. Neely (1978) has reported it at 0.15 per cent, which represents a 15-fold decrease from the pre-antibiotic era.

Suppurative infection of the mastoid cavity in the pre-antibiotic era commonly lingered and often lead to complications from weeks to months after the onset of suppuration. In

**Key word: Mastoiditis**

our case, abscess formation occurred despite several courses of oral antibiotics.

Once infection spread beyond the mastoid cavity and into the substance of the sternomastoid muscle, it spread within the sheath of the muscle very rapidly. Because of the antibiotic therapy, the abscess contained sterile pus.

If a Bezold abscess is present or suspected, a broad spectrum antibiotic should be given forthwith and preparations made for immediate exploration. Because of the variable routes of spread of pus in the neck, a CT scan should be done in every case. Early surgery is mandatory with this condition to establish drainage of both the mastoid air cells and the neck spaces. Intravenous antibiotics should be continued until complete resolution has been achieved.

#### Acknowledgements

We would like to thank the Library Staff of the Royal College of Surgeons in Ireland, and in particular Gillian Walsh for their assistance in the preparation of this report.

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