

## Klebsiella pneumonia as a rare cause of parapharyngeal abscess

Fairuz M Ibrahim<sup>1</sup>, Irfan Mohamad<sup>2</sup>

### ABSTRACT

The incidence of parapharyngeal abscess has reduced dramatically, with the evolution of antibiotics. In a high risk patient for example diabetics, the condition do occur and the abscess is usually well formed and frank abscess will be drained. We report a case of diabetic lady who presented with left neck mass. Imaging showed collection of pus with trapped air under the fascia. Culture from drainage obtained revealed *Klebsiella pneumonia*, which is a rare organism in the region.

**KEY WORDS:** Parapharyngeal space, Abscess, Rare organism.

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### INTRODUCTION

Parapharyngeal space extends from the skull base to the level of hyoid bone. Laterally lay the lateral pterygoid muscles together with the sheath of the parotid gland, while medially the buccopharyngeal fascia overlies the pharyngeal constrictors. As the space is adjacent to the airway, any collection may impose some degree of obstruction. Abscess usually contained in the space and superficial incision on the most prominent site will drain huge amount of frank abscess. The incidence of Klebsiella infection to this space forming trapped air under the fascia is very rare.

### CASE SUMMARY

A 48-year-old lady, a known case of diabetes mellitus presented with three weeks history of painful progressive left neck swelling. It was associated with sore throat and fever. She denied any history of previous tonsillitis, dental problems or foreign body

ingestion. Otherwise her diabetes control was good and she was on oral hypoglycaemic agent for the past six years.

Clinically, there was a fluctuant left neck swelling of 10 x 15 cm size with inflamed overlying skin. The neck movement was limited. Oropharyngeal examination showed the left lateral pharyngeal wall was pushed medially. Dental hygiene was fair.

Computed Tomography scan was obtained to assess the nature and the extension of the neck swelling. The findings was suggestive of a developing abscess and collection of big air pocket in the left parapharyngeal space (Figure-1). The airway was otherwise adequate.

A diagnosis of left parapharyngeal abscess was established. Gas performing organism was suspected. The patient was started on intravenous antibiotics (third generation cephalosporin and metronidazole). Incision and drainage was planned and insulin was started for blood sugar control.

Intraoperatively, after a superficial skin incision, as the locules was breached, a lot of air bubbles escaped (Figure-2). A total of 90 cc of pus was drained. It was sent for bacteriology study. There was presence of slough at the base and the underlying sternocleidomastoid muscle was necrotic. Carotid sheath was not involved and the wound was left open for continuous drainage.

Post-operatively the patient underwent intensive wound dressing in addition to the intravenous

1. Fairuz M Ibrahim, MD,
2. Irfan Mohamad, MD, MMed(ORL-HNS)
- 1-2: Department of Otorhinolaryngology-Head & Neck Surgery, School of Medical Sciences, University Sains Malaysia, 16150 Kota Bharu, Kelantan, Malaysia.

Correspondence:

Irfan Mohamad,  
E-mail: irfan@kb.usm.my

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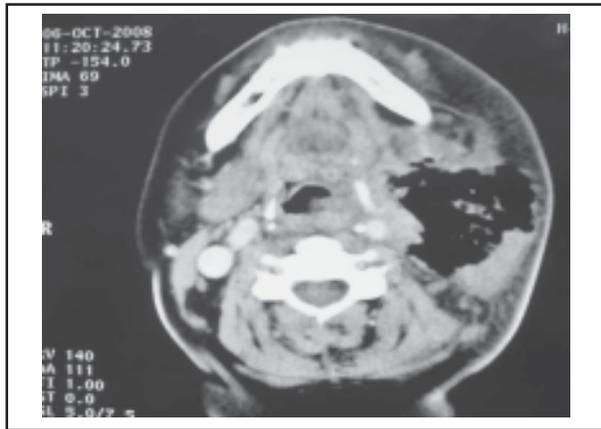


Fig-1: Axial CT scan of neck showed a big air pocket in the left parapharyngeal space.

antibiotics. The swelling subsided & the wound managed to be closed as secondary intention on day 16 postoperatively. Culture of the drained pus revealed *Klebsiella pneumoniae*. The patient was reviewed two weeks later with no evidence of recurrence.

### DISCUSSION

Although parapharyngeal abscess is rare, they can cause serious morbidity and fatality. Life threatening airway compromise, septicaemia, internal jugular vein thrombosis, carotid artery erosion, mediastinitis, pericarditis, epidural abscess are possible serious medical complications.<sup>1</sup>

The most common symptoms of parapharyngeal abscess are pain and odynophagia. A neck swelling has been reported as a constant feature in all patients with parapharyngeal abscess, with fever occurring less than half and trismus was appearing in one third.<sup>2</sup> As demonstrated in the present case, medial displacement of the tonsil is a characteristic sign of an expanding lesion in the parapharyngeal space.<sup>3</sup>

The recommended treatment of parapharyngeal abscess is surgical drainage with concomitant intravenous antibiotic.<sup>4</sup> The drainage can be obtained through aspiration, transcervical incision or transoral drainage, depending on the amount and location of the pus collection.<sup>1</sup> In the present case, transcervical drainage was performed and the area of incision was aimed at the most fluctuant site of the swelling. The presence of bubble upon incision followed by the expulsion of pus showing that the site of collection corresponded well with the incision. As it is a rare finding to see air-escape from the incision, we postulated that this might be contributed by the underlying causative organism activity.

There were five bacterias capable to produce gas and there are *Klebsiella pneumoniae*, *Escherichia coli*,



Fig-2: Air bubbles escaped just after a superficial incision on the swelling

*Clostridial sp*, *Proteus sp* and *Pseudomonas aeruginosa*.<sup>5-7</sup> Bacteriology investigation confirmed the presence of *Klebsiella pneumoniae* which corresponds with the operative finding. *Klebsiella pneumoniae* is a gram-negative, non-motile, encapsulated, lactose fermenting, facultative anaerobic. The organisms are ubiquitous in nature, and they may colonize the skin, pharynx or gastrointestinal tract. *Klebsiella* infections tend to occur in people with a deprived immune system such as in diabetic. It is known to produce gas which is entrapped beneath the locules.

Commonly, organisms cultured from deep neck space infections are  $\beta$ -haemolytic *Streptococcus*, *Staphylococcus aureus*, *Bacteroides* and *Neisseria* species.<sup>8</sup> The predominant anaerobes include *Fusobacterium nucleatum*, *Bacteroid melaninogenicus* and *Peptostreptococcus*.<sup>9</sup> A culture of *Klebsiella pneumoniae* in parapharyngeal abscess is a rare entity.

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