

Management of pain in peritonsillar abscess

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Abstract

A prospective study was undertaken in 75 patients with peritonsillar abscess to determine the treatment that was most effective in relieving the excruciating pain associated with the condition. The patients were divided into three treatment groups: intravenous antibiotic, aspiration, and incision and drainage.

The effect of treatment on pain was objectively assessed by serially measuring the upper to lower incisor distance and by giving the patient water to drink at regular intervals to determine the point at which swallowing was pain-free.

The improvement of the mean upper to lower incisor distance 15 minutes after the initial treatment was five per cent in the intravenous antibiotic group, 38 per cent in the aspiration group, and 100 per cent in the incision and drainage group.

None of the patients in the intravenous antibiotic group was able to swallow water two hours after the initial treatment. In the same time interval two patients (eight per cent) in the aspiration group and 23 patients (92 per cent) in the incision and drainage group were able to swallow water.

The conclusion derived from this study is that incision and drainage is superior to intravenous antibiotic and aspiration in relieving the pain associated with peritonsillar abscess.

Key words: Peritonsillar Abscess

Introduction

Peritonsillar abscess is an extremely painful condition. The marked trismus together with severe odynophagia prevents oral intake necessitating admission to hospital for intravenous fluid replacement. Besides the pain life-threatening conditions such as airway obstruction, spontaneous rupture with aspiration pneumonitis and parapharyngeal abscess with internal jugular vein thrombosis may develop.¹ Surprisingly for a condition with such morbidity no consensus has been reached on treatment. The recommended treatment ranges from an intravenous antibiotic to needle aspiration, incision and drainage and abscess tonsillectomy with antibiotics.

Patients and methods

Over a four month period 75 patients presented with peritonsillar abscess. There were 25 males and 50 females whose ages ranged from 15–43 years (mean 22.5 years).

They presented with trismus and odynophagia with inability to swallow even their saliva resulting in drooling. There was unilateral swelling of the tonsil and soft palate, and medial displacement of the uvula and all patients were pyrexial. The patients were randomly divided into three treatment groups of 25.

Intravenous antibiotic group

The patients were treated with intravenous penicillin, 600 000 units six-hourly and an intra-muscular injection of morphine 1 mg/kilogram/day in four divided doses.

Aspiration group

The peritonsillar abscess was aspirated with a 18FG needle and 10 ml syringe after spraying the area with topical lignocaine.

Incision and drainage group

The abscess was incised and drained under local anaesthesia.

In addition, the patients in the aspiration and incision and drainage groups were prescribed single dose of intramuscular benzathine penicillin 2.4 million units and paracetamol syrup (10 ml six hourly).

Results

1. The distance between upper and lower incisor teeth was recorded with the mouth maximally open before the commencement of treatment and then 15 minutes and 24 hours after the initial treatment (Figure 1).

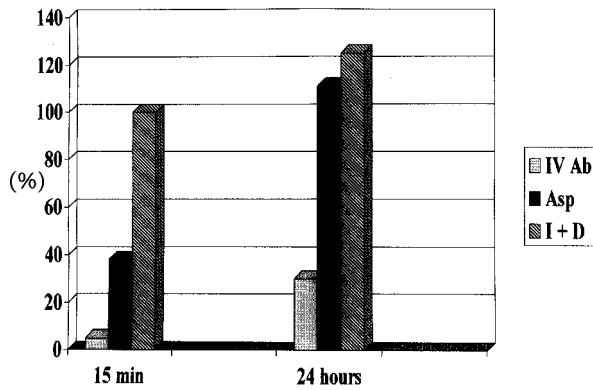


FIG. 1

Improvement of mean upper to lower incisor distance 15 minutes and 24 hours after initial treatment, expressed as a percentage. IV Ab = intravenous antibiotics; Asp = aspiration; I+D = incision and drainage.

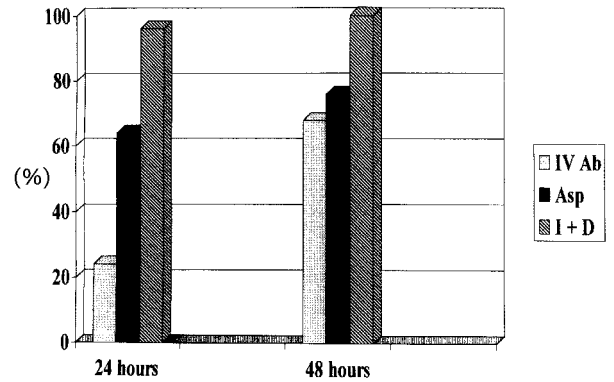


FIG. 3

Percentage of patients in whom body temperature returned to normal 24 and 48 hours after initial treatment. IV Ab = intravenous antibiotics; Asp = aspiration; I+D = incision and drainage.

- Patients were given water to drink two hours after initial treatment and then every six hours until the swallowing was pain free (Figure 2).
- The body temperature was recorded every six hours to determine at which point the fever subsided completely (Figure 3).
- Pus swabs were taken in 39 patients, 25 patients in the incision and drainage group and 14 failures from intravenous antibiotic and aspiration groups (Table I).
- Treatment failures were patients in whom the trismus and pyrexia persisted 48 hours after the initial treatment. There were eight patients (30 per cent) in the intravenous antibiotic group and six (24 per cent) in the aspiration group and none in the incision and drainage group. The 14 failures were successfully treated with incision and drainage.

Discussion

Pain is a predominant factor of peritonsillar abscess and it manifests as trismus and odynophagia. The trismus is thought to be due to inflammation of the medial pterygoid muscle which lies lateral to the tonsil. The spasm produces severe pain preventing the mouth from opening fully and hence the patients

are unable to eat or drink, and drooling is common. As the spasm diminishes opening of the mouth becomes easier. This manifests as an increase in upper to lower incisor distance. Therefore by serially measuring this distance one is able to assess the effect of any treatment on trismus and consequently pain.

In this study there was 100 per cent improvement of the mean upper to lower incisor distance in the incision and drainage group, 15 minutes after the procedure, whilst in the intravenous antibiotic and aspiration treatment groups there was only five per cent and 38 per cent improvement respectively demonstrating that incision and drainage is very effective in relieving the trismus associated with PTA (Figure 1).

The odynophagia is due to inflammation of the superior constrictor muscle of the pharynx which forms the lateral wall of the tonsil. The magnitude of the pain is such that the patients are afraid to swallow, even their own saliva, resulting in drooling.

Oral intake only commences when the pain subsides, and therefore by giving the patient water to drink at regular intervals one can determine the point at which the pain has subsided completely. This was used as an indirect determinant of the effectiveness of the various treatment.

None of the patients in the intravenous antibiotic group was able to drink water two hours after the initial treatment. In the same time interval eight per cent of patients in the aspiration group and 92 per cent of patients in the incision and drainage group were able to swallow water without any discomfort (Figure 2). This is very important when considering treating patients with peritonsillar abscess as out-patients. The pre-requisites for outpatient treatment are that patients must be able to take fluids and antibiotics orally. According to this study 92 per cent of the patients in the incision and drainage treatment group could be treated as out-patients and only eight per cent in the aspiration group.

The bacteriology of the PTA revealed aerobic and anaerobic organisms (Table I). The commonest bacterium was *Streptococcus* species (64 per cent).

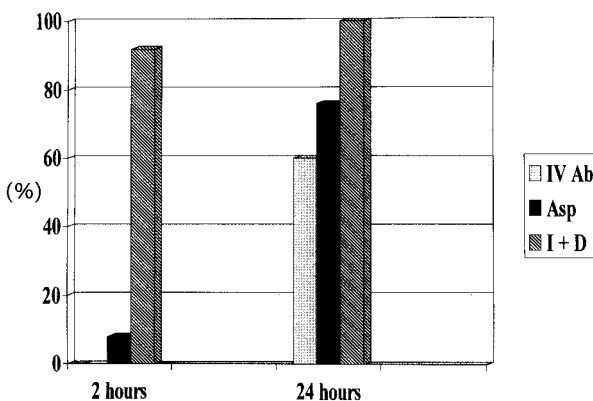


FIG. 2

Percentage of patients that were able to swallow water at two and 24 hours after initial treatment. IV Ab = intravenous antibiotics; Asp = aspiration; I+D = incision and drainage.

TABLE I
BACTERIOLOGY OF PUS SWAB

Bacteria	No. of patients	%
<i>Streptococcus</i> species	23	64
<i>pyogenes</i> 11		
<i>viridans</i> 6		
<i>milleri</i> 2		
<i>pneumoniae</i> 4		
<i>Staphylococcus aureus</i>	2	6
Anaerobes	4	11
Mixed anaerobes and aerobes	4	11
No growth	3	8

This is similar to the 62 per cent and 70 per cent reported by Maharaj *et al.*² and Savolainen³ respectively. Importantly all *Streptococcus* species were sensitive to penicillin thus making it the drug of choice for patients with peritonsillar abscess. Haeggstrom *et al.*⁴ in 1987 reported the same.

In this study the success with aspiration was 76 per cent. This is slightly lower than the 90 per cent reported by Schechter *et al.*,⁵ Herzon⁶ and Wolf *et al.*⁷ and 85 per cent by Ophir.⁸ The lower success rate may be due to the fact that patients were treated with single aspiration only.

The success with incision and drainage was 100 per cent, similar to the report by Wolf *et al.*⁷

It seems that the presence of pus in the peritonsillar space is responsible for the pain because as soon as the abscess cavity is decompressed and the pus evacuated, the pain subsides. This effect was noted in all patients with incision and drainage and also in the nine patients in the intravenous antibiotic group who reported instantaneous pain relief when the abscess ruptured spontaneously.

Therefore, in order to relieve the pain and suffering, the peritonsillar abscess must be incised and drained immediately. This can be safely and effectively undertaken in the ENT clinic under local anaesthesia or by abscess tonsillectomy in the operating theatre.

The latter is not recommended because there is an unavoidable delay ranging from eight to 72 hours to get the patient into an operating theatre^{9,10} and there is also the risk of spontaneous abscess rupture and aspiration pneumonitis on induction of anaesthesia or intubation.

Conclusion

Incision and drainage is better than intravenous antibiotic and aspiration, not only in relieving the pain and discomfort associated with peritonsillar abscess but also because it is 100 per cent successful.

The pain relief is instantaneous and the patients are able to swallow immediately, thus making it possible for them to be treated as out-patients.

References

- 1 Cowan DL, Hibbert J. In: Kerr A, ed. *Scott Brown's Otolaryngology*, 6th edn. London: Butterworth 1988;5, chapter 4
- 2 Maharaj D, Rajah V, Hemsley S. Management of peritonsillar abscess. *J Laryngol Otol* 1991;**105**:743–5
- 3 Savolainen S, Jousimies-Somer HR, Makitie AA, Ylikoski JS. Peritonsillar abscess: clinical and microbiological aspects and treatment regimens. *Arch Otolaryngol Head Neck Surg* 1993;**119**:521–4
- 4 Haeggstrom D, Engquit A, Hallander H. Bacteriology in peritonsillitis. *Acta Otolaryngol* 1987;**103**:151–8
- 5 Schechter GL, Sly DE, Roper AL, Jackson RT. Changing face of treatment of peritonsillar abscess. *Laryngoscope* 1982;**92**:657–9
- 6 Herzon FS. Permucosal needle drainage of peritonsillar abscess – a five year experience. *Arch Otolaryngol Head Neck Surg* 1984;**110**:104–5
- 7 Wolf M, Even-Chen I, Kronenberg J. Peritonsillar abscess: Repeated needle aspiration versus incision and drainage. *Ann Otol Rhinol Laryngol* 1994;**103**:554–7
- 8 Ophir D, Bawnik J, Poria Y, Porat M, Marshak G. Peritonsillar abscess: A prospective evolution of outpatient management by needle aspiration. *Arch Otolaryngol Head Neck Surg* 1988;**114**:661–3
- 9 Bonding P. Tonsillectomy a Chaud. *J Laryngol Otol* 1970;**87**:1171–82
- 10 Harley EH. Quinsy tonsillectomy as the treatment of choice for peritonsillar abscess. *Ear Nose Throat J* 1988;**67**:84–7

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Dr T. T. Nwe takes responsibility for the integrity of the content of the paper.

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