

ORIGINAL ARTICLE

COMPARISON OF FNA VS SURFACE SWAB CULTURE IN ISOLATING CORE FLORA IN RECURRENT TONSILLITIS

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Background: Tonsillitis is one of the most common childhood afflictions. This prospective study was designed to explore the possible role of fine needle aspiration of recurrently inflamed tonsils in determining their core flora. **Results:** Seventy-seven patients at DHQ Hospital Haripur undergoing tonsillectomy for recurrent tonsillitis were included in the study. Colonies grown from fine needle aspirate and surface swab were compared with tonsillar core culture obtained after tonsillectomy. The pathogens isolated by fine needle aspiration culture were not greatly different from surface swab results in comparison to core isolates. **Conclusion:** The results of fine needle aspirate do not appear to confer any advantage over surface swab in representing core flora. These findings indicate no preferred clinical use for fine needle aspiration in the management of recurrent tonsillitis.

Keywords: Fine needle aspiration (FNA), Culture, Tonsillitis

INTRODUCTION

Tonsillitis is one of the most common childhood afflictions. In United States, 40 million people visit their physicians with this problem every year¹ costing almost \$300 million for its diagnosis alone². Many of these cases reach the recurrent/chronic stage, a majority eventually requiring tonsillectomy, which constitutes 50% of all major paediatric surgeries.³ The second common cause is bacterial infection of which predominant is Group A β -haemolytic streptococcus, which causes sore throat.¹⁴⁻¹⁷

A swab from the tonsillar surface is used routinely to isolate the pathogens to assist in appropriate antimicrobial selection. Many reports have questioned the reliability of these samples in reflecting the core flora.⁴⁻⁶

Until now, a core sample from the tonsil could be obtained only after tonsillectomy but Timon *et al* have reported fine needle aspiration (FNA) of the tonsil as a possible method of obtaining *in vivo* core samples.⁷

The objective of this study was to determine the efficacy of FNA of the tonsil in determining its core flora in comparison with the surface swab.

MATERIAL AND METHODS

This Study was conducted between November 2008 and March 2012 at the District Headquarter Hospital, Haripur. It included 77 consecutive patients undergoing tonsillectomy for recurrent tonsillitis. Samples were collected in the operating room under asepsis and after induction of general anaesthesia.

Initially a swab from tonsil was taken and placed in transport medium (Centiplast LP italiana SPA Milan, Italy). The same tonsil was aspirated with a 10 ml disposable syringe carrying a 21-G needle,

(Plastipak Pak Co, LDR Rutherford, NJ, USA) on at least 2 points on tonsil and the aspirate was added to transport medium (Tryptic Soy Broth). Finally the same tonsil was excised by dissection and placed in sterile container with no additives. All these samples were dispatched to the microbiology laboratory immediately. In the laboratory the tonsil was aseptically cut after rinsing with normal sterile saline and samples were taken from its core and inoculated. All samples were incubated on blood and chocolate agar in a 5–10% CO₂ incubator for 24 hours. The colonies were identified morphologically and by serological tests as *Haemophilus influenzae* that was later detected by agglutination tests. *Staphylococcus aureus* were coagulase tested by haemagglutination and one that were negative were further tested by tube agglutination using rabbit serum. *Haemolytic streptococci* were tested by Strept slide 2, Porton Cambridge. The organism could not be tested for β -lactamase production due to lack of this facility.

RESULTS

The study included 77 cases admitted for tonsillectomy due to recurrent tonsillitis. These include 44 males and 33 females, their ages were between 2 and 28 years (Mean age 8.7 years). Children under 10 years of age constituted more than 75% of the total. *Haemophilus influenzae*, *Staph. aureus*, *Beta hemolytic streptococcus* and *Strep. pneumoniae* was found either singly or in combination. *Haemophilus influenzae* was the most common pathogen isolated by all sampling techniques (core culture: 36/77, FNA: 32/77, swab culture: 32/77). *Staphylococcus aureus* was isolated in 24/77 in core culture, 18/77 in FNA, and 21/77 in surface swab. *β -Streptococcus* was isolated in 16/77 in core culture, 10/77 in FNA, and 15/77 in surface swab.

Table-1: Pattern of bacterial growth (n=77)

Bacterial species	Core culture	%	Surface swab	%	FNA culture	%
<i>H. Influenzae</i>	36	47	32	42	32	42
<i>Staph. aureus</i>	24	31	21	29	18	23
<i>B. Hemolytic streptococcus</i>	16	21	15	19	10	13
<i>Strep. pneumonia</i>	3	4	8	10	6	8
<i>Staph. epidermis</i>	2	3	3	4	1	1
Mixed growth	19	13	17	22	13	17
Normal flora	21	27	25	32	15	19

DISCUSSION

Tonsillectomy is the most common surgical procedure performed on children in United Kingdom^{8,9} and the United States³. Recurrent tonsillitis is the most common indication for the procedure. Possible causes leading to this may be due to enzymatic inactivation of penicillin by β -lactamase¹⁰, non-compliance with drug schedule, sub-therapeutic antibiotic dosage, loculation of the bacteria in the tonsil core¹¹.

In this study *H. influenza* and *S. aureus* were the common pathogens grown by all the techniques. In 47% cases core culture isolated *H. influenza* as the most common organism, consistent with other reports^{7,12,13}. But the proportion of our *H. influenza* cases was much lower than reported by Timon *et al*⁷. It could be due to climatic differences. No differences were found in the number of *H. influenza* grown by FNA and surface swab. Similarly *S. aureus* was grown in 31% in core culture, 23% in FNA, and 27% in surface swab. β -*Streptococci* was grown in 21% in core culture, 13% in FNA, and 19% in surface swab.

Timon *et al*⁷ concluded that FNA was of superior value to the surface swab in representing the tonsillar core pathogens the detection rate of pathogenic organisms by FNA was not different from that of surface swab technique.

CONCLUSION

The fine needle aspiration of the tonsil does not seem to confer any additional advantage over the more commonly performed surface swab in representing the core pathogens.

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