The Associated Microbiology of pilonidal Sinus Disease in a Small Rural Hospital

Marianna Zukiwskyj, Peita M. Webb

ORIGINAL ARTICLE

Bundaberg Base Hospital, Bourbong Street, Bundaberg 4670, Queensland, Australia

M Zukiwskyj MBBS; PM Webb BPthy, MBBS

Corresponding author: Marianna Zukiwskyj, Bundaberg Hospital, Department of Surgery, Bourbong Street, Bundaberg 4670, Queensland, Australia; Tel: +61 7 4150 2222; Email: Marianna.Zukiwskyj@health.qld.gov.au

Reviewers: JA, DD, KD

Date of submission: 30/03/2016

INTRODUCTION

Pilonidal sinus disease encompasses a spectrum of disease ranging from an asymptomatic finding to acute pilonidal abscess or chronic inflammation (1). Microbiology of pilonidal disease is usually polymicrobial with a predominance of anaerobic organisms (2) but limited data exists as to standard antibiotic therapy (1). The aim of this paper was to analyse the culture of pilonidal specimens from a small rural hospital and to compare the results with similar past studies. Antibiotic choice was also ascertained in order to determine if there was a consensus within our hospital as to antibiotic prophylaxis at the time of surgery, nor as to whether antibiotics should be continued post abscess drainage.

METHODS

Between January 2015 and December 2015, 15 patients were retrospectively identified as requiring operative intervention for pilonidal sinus disease. A total of 21 swab samples were collected from these patients. Four patients had recurrent disease, accounting for more than one swab sample during the study period. Sampling was intraoperative in 15 of the specimens, whilst the remaining samples had been collected in the emergency department setting. All samples were analysed by a single laboratory and
isolates classed as either anaerobic or aerobic and single organisms identified in samples where there was predominance.

RESULTS
Of the 15 patients, 11 were male and 4 were female. Fifteen (71.4%) of the samples originated from male patients, and the remaining six (28.6%) from female patients. The mean age was 24.5 years (range 13-19). Five cases were paediatric (age less than 17 years). Ten of the fifteen patients were smokers at the time of operative intervention. In the sixteen cases where a Body Mass Index (BMI) was recorded, the mean BMI was 29.3kg/m² (range 25.0 - 43.3). Seven of the fifteen patients had a BMI greater than 30.

Seven of the cases were intraoperative specimens from elective excision of pilonidal sinus disease. The remaining specimens were taken during incision and drainage of a pilonidal abscess. Pilonidal sinus and abscess microbiology is shown in Tables 1 and 2 respectively. In total, 95.2% of samples were reported as polymicrobial. Twenty (95.2%) of the twenty-one samples cultured anaerobic bacteria. Mixed anaerobic bacteria were reported in 6 (28.6%) samples, mixed skin flora in 1 (4.8%), mixed aerobic and anaerobic in 13 (61.9%) and one sample reported *Streptococcus intermedius* only. Three samples reported a specific organism: *Staphlococcus aureus, Streptococcus intermedius* and *Streptococcus constellatus*. For swabs obtained from patients with recurrent disease all had mixed anaerobic growth. Differences between elective and acute patient’s microbiology is shown in Table 2.

With respect to antibiotic therapy, all but one of the operative cases received antibiotic prophylaxis, most commonly with a cephalosporin, 62.5% (cephazolin or cefoxitin). Other antibiotic regimes included flucloxacillin with or without metronidazole, metronidazole alone or in combination with a cephalosporin and the triple combination of metronidazole, ampicillin and gentamicin. Over half of all cases were discharged on a course of commonly AUGMENTIN DUO FORTE (amoxycillin plus clavulanic acid), however flucloxacillin and cephalaxin were also prescribed.

![Table 1. Pilonidal sinus microbiology](image1)

<table>
<thead>
<tr>
<th></th>
<th>Single Organism</th>
<th>Polymicrobial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaerobic</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Aerobic</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mixed Aerobic/Anaerobic</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

![Table 2. Pilonidal abscess microbiology](image2)

<table>
<thead>
<tr>
<th></th>
<th>Single Organism</th>
<th>Polymicrobial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaerobic</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Aerobic</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mixed Aerobic/Anaerobic</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 1. Pilonidal sinus microbiology Table 2. Pilonidal abscess microbiology

DISCUSSION
The incidence of pilonidal disease is on the rise (1) yet the exact aetiology of pilonidal sinus disease remains controversial. The presence of bacteria in pilonidal infections and chronic pilonidal sinus has not been shown to be associated with more frequent wound complication post-operatively, nor is it clear whether antibiotic prophylaxis reduces wound complications or recurrences (3,4).
In pilonidal abscesses there is a predominance of anaerobic isolates (5,6). In a study examining the microbiology of 75 aspirates of pilonidal pus (5), positive cultures were established in 75 of 81 specimens (91%). Cultures of only anaerobes were found in 77% of specimens, only aerobes in 3% and mixed aerobic and anaerobic in 19% of specimens. This was in contrast to our results of 28.6% of samples containing only anaerobes and 71.4% of samples containing mixed aerobic and anaerobic organisms (5).

Adequate surgical drainage of an abscess is the mainstay of treatment and the role of postoperative antibiotics is not routine. It is suggested that the microbiology of an abscess may be predicted by its location (7). It could therefore be argued, that routine microbiology swab at drainage of a pilonidal abscess is unnecessary (6).

For patients with quiescent disease presenting for elective procedures there is no standardized prophylactic antibiotic regime. Anaerobes have been found to colonise chronic pilonidal sinus disease (8) and so prophylaxis should include anaerobic cover. However, in a randomized, controlled trial, a single dose of 2g cefoxitin prophylaxis for elective pilonidal sinus excision and primary suture repair did not show a benefit to healing time, wound complications or disease recurrence (9). In comparison, a single dose of Metronidazole prophylaxis alone was showed to be inferior to the use of broad spectrum prophylaxis followed by a 5 day course of oral co-amoxiclav (10). In a recent review of antibiotic prophylaxis for elective definitive excision, there was no evidence to suggest that on table prophylaxis led to fewer surgical site infections, compared with no prophylaxis (11).

Our study had limitations since it was retrospective and was of a small sample size. Its purpose was to sample the microbiology of pilonidal sinus disease in our small rural hospital and to determine if our current practice was appropriate in terms of antibiotics prescription in both the acute and elective settings.

The microbiology of pilonidal disease in our study was predominately anaerobic and polymicrobial. The polymicrobial nature was in keeping with previous studies, however the proportion of anaerobic, aerobic and mixed anaerobic and aerobic varied in the studies analysed. With respect to antibiotic therapy, given our findings we would suggest anaerobic cover if prophylactic antibiotic therapy is to be employed.

ACKNOWLEDGMENTS
N/A

MULTIMEDIA
N/A

REFERENCES

Cite this Article as: Zukiwskyj M, Webb PM (2016), "The Associated Microbiology of Pilonidal Sinus Disease in a Small Rural Hospital ". PSJ (2016) 2(1): 1-4. DOI:


Cite this Article as: Zukiwskyj M, Webb PM (2016), "The Associated Microbiology of Pilonidal Sinus Disease in a Small Rural Hospital ". PSJ (2016) 2(1): 1-4. DOI: