Pediatric Surgical Approach To Childhood Abscess: A Study From An Outpatient Facility

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Citation

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Abstract

Background/aim: Percutaneous abscess drainage is a frequent procedure in the pediatric surgery outpatient setting. However it has it's own drawbacks in the treatment and follow-up. In this study we aimd to evaluate the patients with abscesses who had been treated surgically.

Methods: Within 2.5 year period we investigated the total admissions, patientts with abscess, their register cards, age, abscess localization, complications, bacterial growth in the abscess materials, anaerobic and aerobic bacteria and antibiotic susceptibility of bacteria retrospectively.

Results: Between Jan 1999 - April 2001, the total admission was 6127 patients. Admission with abscess was 58 (0.94%). Mean age was 3.5 years. (11 days - 15 years). Six patients were neonate (10.3%), 19 were under one year and 33 over one year. The frequent localization of abscess were: perianal; (n=18), submandibular; (n=6), axillar; (n=4), cervical; (n=3). Other localizations were mammary, gluteal region, upper extremities and periauricular region (n=25). Mainly local (n=56, 96%) anesthesia was used. Empirical antibiotic was initiated and changed if necessary according to the bacterial growth (BG). No major complication was observed. BG demonstrated on bacterial culture of 45 of 58 admission (77%). In 15.5% (n=7) of cultured abscesses grew aerobes and 4.4% (n=2) anaerobes exclusively. 44.4% (n=20) grew a mixture of aerobes and anaerobes. 33.3% (n=15) grew a mixture of aerobes and aerobes. It has been only one growth on mycobacterium tuberculosis. Predominant aerobic organisms were Enterobacter (n=16, 17.5%), S. Aureus(n=15, 16.4%), Enterococcus (n=15, 16.4%), E. Coli (n=13,14,2%) and predominant anaerobic organism was Propionibacterium acnes (n=7, 7.7%). Enterobacter and E. Coli have susceptibility against to sefaperazon-sulbactam and all S. Aureus susceptible to meticillin. S. Aureus and Enteroccocus are sensible to ampicillin-sulbactam and amoxicillin-clavulonic acid.

Conclusion:

The frequent localization of abscesses was perianal, submandibular and axillar.

Local anesthesia was the preferred method for abscess incision and drainage.

No differences have observed between different age groups on localization and complication of abscesses.

Aerobic and anaerobic culture should be done to find out the antibiotic susceptibility.

INTRODUCTION

Percutaneous abscess drainage is a frequent procedure in the pediatric surgery outpatient setting ([1,2]). As seen as a simple procedures, the treatment and follow-up protocols are not standardized and overlooked. Additionally the organisms responsible for abscesses can differ in each institution ([3,4]). The aim of the study is to document the patients with abscess who had been treated surgically in our pediatric surgery outpatient setting.

MATERIAL AND METHODS

Within 2.5 year period, we investigated the total admissions, patients with abscess, their register cards, age distribution, abscess localization, complications, bacterial growth in the abscess materials, anaerobic and aerobic bacteria and susceptibility of bacteria retrospectively.

RESULTS

Between January 1999-April 2001, total outpatient admission was 6127 patients. Among this admission patients with abscess consists of 58 (0.94%) patients. Mean age was 3.5 years (11days-15years). Age distribution: Neonate (n=6), 1 month-1 year (n=19) and >1 year (n=33). The frequent localization of abscess was perianal and the frequent growing microorganisms were Enterobacter, S. Aureus and Enterococcus (Table 1).

Local (n=56) and general (n=2) anesthesia were used for abscess drainage. Following incision and drainage empirical antibiotics were initiated and changed if necessary according to the bacterial growth (BG). Average dressing was 1.3 days and varied with size and location. No major complication was observed in the follow-up. BG demonstrated on bacterial cultur of 45 of 58 admission (77%). Specimens from abscesses were cultured for aerobic and anaerobic microorganisms. These bacterial groups were presented in Table 2.

Figure 1

Table 2: Growing bacterial groups

Localization of Abscess	Frequent growing microorganisms	Neonate	< 1 year	> 1 year	Total
Perianal	*Enterobacter (%23,2) Enterococcus (%18, 6)*	5	10	3	18 (31%)
Submandibular	*S. Aureus (%23) Enterococcus (%23)*	-	1	5	6 (10,3%)
Axillar	*S. Aureus (%50) P. Acnes (%50)*	-	-	4	4 (6,8%)
Servical	*S. Aureus (%33,3) E. Coli (%33,3)*	-	1	2	3 (5,1%)
Inguinal	*S. Aureus (%66,6) P. Acnes (%33,3)*	-	1	1	2 (3,4%)
Miscellaneous (Mammary, Gluteal, Upper extremities, periauricular, etc.)	*S. Aureus (%23,8) Enterococcus (%14,2) P. Acnes (%14,2)*	1	6	18	25 (43%)

The predominant microorganisms were Enterobacter (n=16, 17.5%), S. Aureus(n=15, 16.4%), Enterococcus (n=15, 16.4%), E. Coli (n=13,14.2%), Propionibacterium Acnes (n=7, 7.7%). All growing aerobic and anaerobic microorganisms were listed in Table 3 and 4.

Figure 2

Table 3: Aerobic microorganisms

Growing bacterial group	n	%
Enterobacter	16	17,5
S. Aureus	15	16,4
Enterococus	15	16,4
E. Coli	13	14,2
P. Myrabilis	3	3,2
P. Auroginosa	1	1,1
P. Vulgaris	1	1,1
β-hemolytic Streptococus	1	1,1
Acinetobacter	1	1,1
M. Tuberculosis	1	1,1

Figure 3

Table 4: Anaerobic microorganism

Growing bacterial group	n	%
P. Acnes	7	7,7
Peptostreptococcus	6	6,6
B. Fragilis	4	4,4
Black pigmented anaerob G(-) coccus	4	4,4
Clostridium	3	3,3

Specimens from superficial abscesses in our outpatients were cultured and antibiotic susceptibility was obtained. Enterobacter and E. Coli have susceptibility against to sefaperazon-sulbactam. All S. Aureus are resistant to penicillin and susceptible to meticillin. S. Aureus and Enteroccocus are found sensible to ampicillin-sulbactam and amoxicillin-clavulonic acid.

DISCUSSON

Superficial abscesses are commonly seen in the pediatric surgery outpatient setting. Treatment consists of surgical drainage with the addition of antibiotics. Incision is generally performed using local anesthesia (Chlorethan, Ethylcloride). Care must be taken to make a surgically appropriate incision that allows adequate drainage without injuring important structures. Postoperative care includes drains, analgesia and close follow-up and complications of this procedure include damage to adjacent structures, bacteremic complications and spread of infection owing to

inadequate drainage ([5]).

Controversy exists about the value of antibiotic therapy following incision and drainage of cutaneous abscess. In their clinical trial, Llera JL et al concluded that antibiotics didn't alter the outcome of cutaneous abscess ([2]). It has been adviced that routine culture and antibiotic therapy were not indicated for localized abscesses in patients with normal host defenses ([4]). In this two clinical trials, postoperative antibiotic treatment was not recommended because the problems healed without complication. On contrary some investigators advocate that parenteral antibiotic treatment diminished the rate of bacteremia, when used before draining cutaneous abscess. Blood and pus specimen for bacteriological cultures were obtained at the same time in this study ([6]). Incision and drainage of localized abscesses in afebril adults was unlikely to result in transient bacteremia. Larger studies were needed to determine whether routine antibiotic prophilaxis was necessary for afebril patients undergoing incision and drainage ([7]). In our pediatric surgery outpatient setting, after draining and sampling for bacteriological cultures, we have been using empirical antibiotics. We haven't been seen major complication and clinical improvement was achived immediately.

Anatomic locations of cutaneous abscesses are different and in a study, forty-one percent of all abscesses were in the anogenital region ([1]). In our study, most frequent location was also the perianal region (31%). Mixed aerobic and anaerobic bacteria and mixed aerobic bacteria were frequent. This growing patttern was different from other studies where aerobic BG gave highest and mixed BG lowest percentages ([1,8]). Anaerobic microorganisms was frequently obtained from mixed bacterial cultures ([6]). In our study, anaerobic bacterial growth showed lowest percentage.

As seen in Table 3 & 4, frequent aerobic microorganisms were Enterobacter, S. Aureus, Enterococcus and frequent anaerobic microorganisms were P. Acnes, Peptostreptococcus and B. Fragilis. Aerobic microorganisms were mostly isolated from cervical and submandibular regions. Anaerobic microorganisms which mixed aerobic's primarily isolated from perianal and inguinal regions. There is a correlation between this findings and conclusions of similar studies ([4,8]).

We think that the initial empirical antibiotic should be sefaperazone-sulbactam in perianal abscess (Enterobacter was most common organism found in this region). One of the frequent growing microorganism was E. Coli that have suscebtibility against this antibiotic. Other chosen antibiotics were ampicillin-sulbactam and amoxicillin-clavulonic acid. Enterococcus which is sensible to these antibiotics is found in perianal abscess. These antibiotics also should be used in submandibular, axillar, servical abcesses, as isolated microorganisms from these regions have susceptibility to it.

Intravenous diazepam can be used in outpatient procedures ([9]). But, we preferred only using local anesthesia in our outpatients with cutaneous abscesses.

Our approach to childhood abscess: When patients with cutaneous abscess admit to our pediatric surgery outpatient setting, specimen for bacteriological cultures is obtained, and then surgical drainage is performed using local anesthesia; empirical antibiotics are used and changed if necessary according to BG. Postoperative care which includes drains, analgesia, effective dresssings is very important. We are using this standart treatment protocol with success and no major complication was observed.

CONCLUSION

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KEY MESSAGE

The standart treatment protocol for cutaneous abscess in childhood should include:

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