

A Review of Drug Addict Abscesses

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Summary

(1) Abscess due to subcutaneous injection of heroin (skin-popping) are very common in inner city Dublin hospitals. (2) The most common sites are the antecubital fossa and deltoid regions of the arms and the buttocks. (3) The most common organism in this series of abscesses is staph aureus. One third of all abscesses had multiple organisms. In 90% of abscesses with multiple organisms a Streptococcus is present. (4) Unexpectedly two cases of strep pneumoniae abscesses were recorded. This may be a manifestation of (a) spread via dirty needles or (b) immune deficiency in drug addicts. (5) All the organisms grown were susceptible to standard antibiotics, despite reports that in other populations of drug abusers, methicillin resistant staph aureus exist. (6) The recommended treatment for these abscesses is (a) incision and drainage with (b) antibiotics in severely ill patients and those with accompanying cellulitis.

Introduction

Due to the increase in drug addiction in Dublin, addicts are presenting with abscesses more frequently. The increase in numbers seen in the Meath and Adelaide Hospitals prompted us to review the problem again. Much has been written on the infectious complications of drug abuse but abscesses have received only scant attention^{1,2}. To improve therapy of the abscesses a close look at the microbiology of the abscesses was required. Based on these findings are recommendations for treatment of these abscesses.

Patients and Methods

The Meath and Adelaide Hospitals are situated in the inner Dublin City Area close to a number of large flat complexes where drug addiction is a severe problem. The main drug in use is heroin and all the abscesses treated were due to heroin abuse. All patients seen between February and June 1983 were studied. The addicts admitted to injecting the heroin subcutaneously (skin popping) due to a lack of venepuncture sites, from chronic abuse.

The age and sex of each patient was recorded, together with the site and number of abscesses. All abscesses required incision and drainage either in the casualty department or in theatre after admission. The decision to admit a patient was made depending on whether general anaesthesia was required and on the extent of the abscesses. All patients had swabs and specimens of pus taken for immediate gram stain, culture and sensitivity. Special care was taken to ensure the laboratory received fresh anaerobic samples.

Results

Patients: A total of 26 cases presented in the five month period and these patients had a total of 31 abscesses. The average age of the patients was 20.0 years (range 16-34 years). There were 18 male and 8 female patients. Due to the extent of the abscesses, 8 patients required hospitalisation. Six of these patients were male. The average hospital stay was 6 days (range 1-15 days). These cases had multiple abscesses or severe cellulitis. One

Table 1
Distribution of organisms by culture.

Micro Organism	Culture	
	Pure	Mixed
Staph Aureus	10	5
Streptococci Non Haemolytic	2	9
Haemolytic	3	3
Pneumococci	2	–
Staph Albus	–	2
Gram Negative Bacillus	–	1
Diphtheroids	1	1
Bacteroides	–	1
Clostridia	1	–

patient had multiple abscesses and an iron deficiency anaemia of 8g/dl.

Twenty-one cases had a single abscess of which 16 occurred in the arms, either in the deltoid region or the antecubital fossa. Five cases had multiple abscesses. Two had multiple abscesses in the arms and the others had abscesses occurring in both arms and legs.

Bacteriology: Immediate gram stain was performed in 25 of the 26 cases. Twenty-two specimens showed gram +ve cocci and all grew gram –ve organisms on culture. Eight specimens showed gram –ve organisms on smear but only one grew on culture. This gram negative bacillus was not identified. Also there was one smear of gram +ve diplococci, another of gram +ve bacilli, and two specimens where no bacteria were seen on smear.

Culture results are shown in Table 1. Single organisms were identified in 17 cases with 19 abscesses. Multiple organisms occurred in 8 cases with 12 abscesses. Staph aureus was the most common bacterium in abscesses with pure culture. In abscesses with two organisms all but one had a streptococcus associated with another organism. Of the two specimens that grew diphtheroids one was in pure culture while the other was associated with a streptococcus. Strep pneumoniae occurred in 2 cases. The sensitivities of the isolates was recorded and the results are shown in Table 2. Notable is the absence of resistance to cloxacillin/methicillin of the staph aureus.

Discussion

Abscesses are a common problem in drug addicts. They present as painful red

Table 2
Antibiotic sensitivities of the Bacteria

	Ampicillin	Clox/Meth	Erythromycin	M'zole	Pen.	TMP
Staph Aureus	–	15	15	–	13	13
Staph Albus	–	–	–	–	–	–
Pneumococci	–	–	2	–	2	–
Haemolytic Strep.	2	–	6	–	5	2
Non-Haemolytic Strep.	5	–	11	–	10	3
Diphtheroids	–	–	–	–	–	–
GNB	1					
Bacteroides				1		
Clostridia				M'zole	1	

– = Not tested, inappropriate.

fluctuant masses in the arms and buttocks. The abscess cavity can be quite deep. Despite the considerable problems treating these patients, the topic has received little attention in the

literature^{1,2}. Investigation of the abscess flora may help throw light on more serious septic complications such as infectious endocarditis. Webb and Thadepalli² investigated soft tissue infections and found a large number of anaerobic infections. We cultured two anaerobes and one unidentified gram negative bacillus. Also 7 gram negative organisms did not grow on culture. These gram-ve organisms were most probably of the bacteroides family. Prompt culture is necessary for these fastidious organisms and as many of the patients attended at night, delay may have occurred in culturing of the specimens.

Staph aureus was the most common organism occurring in over 64% of cases and was most likely to occur in pure culture. When two organisms occurred in an abscess one of them was almost always a streptococcus (90%). Non-haemolytic streptococci were most common.

Recently, Saravolotz et al.⁴ reported methicillin resistant staph aureus among drug addicts in Detroit. However, all the staph aureus cultured in our series were sensitive to cloxacillin/methicillin; this, despite the major problem that now exists with methicillin resistant staph aureus in Dublin hospitals⁵.

Tauzan et al.⁶ cultured heroin and swabs from needles and syringes. They found a wide range of bacteria including clostridia, klebsiella, diphtheroids, e.coli and coagulase -ve staphylococci. These cultures suggested that the syringes were not the source of bacteria for abscess formation but rather that the bacteria originated in the skin of the patients. The present study confirms this impression.

Two cases of pneumococcal abscess formation occurred in this study. This is a most unusual feature in this type of pyogenic abscess, only being reported once in the literature by Lewis et al.⁷ Lewis suggested that the source of pneumococci was in the mouth. He postulated that the bacteria were inoculated via dirty needles blown clear with saliva. Alternatively, these encapsulated organisms could be a manifestation of immuno-deficiency in drug addicts. Lewis reported a deep-seated cellulitis with death in one patient. However, both cases in our series had abscess formation and resolved following incision and drainage.

Hussey et al.⁸ and Cherubin et al.² reported a serious problem with tetanus in drug addicts in U.S.A. In contrast, we isolated only one clostridium from abscess pus and no case of tetanus associated with drug addicts has been recorded in our hospitals.

Conclusions

In conclusion we recommend –

1. The need for growing awareness of abscess formation in drug addicts.
2. The need for rapid gram stain and early culture for identification of organisms.
3. Incision and drainage of all abscesses as the cornerstone of therapy.
4. Inclusion of penicillin, cloxacillin and metronidazole in severe cases. Erythromycin is a very good alternative choice in cases with allergy to Penicillin.

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