International Journal of Orthopaedics Sciences

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2019; 5(4): 433-434

www.orthopaper.com
Received: 16-08-2019
Accepted: 18-09-2019

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Suction drain tip culture after orthopaedic surgery: Can it predict a surgical site infection?

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DOI: https://doi.org/10.22271/ortho.2019.v5.i4h.1712

Abstract
In orthopaedic surgery, wound infection is a dreaded complication while surgical asepsis and theatre asepsis are mandated to be of highest standards, yet there is a 3 to 11 percent incidence of post surgical wound infections, even in the best of the centres. While intra op and post op IV antibiotics are routinely used in prophylaxis, wound infections do occur. Routinely in orthopaedic major surgeries the drainage tube is removed after 48 hours. This study was conducted in the aim to establish wheat her the organism grown from the culture of the drainage tube tip has any bearing on the ability to predictindolent or impending wound infection, that the patient would suffer subsequently. This study was spread over 84 patients who underwent major orthopaedic procedures. Cases were followed up for 6months after surgery. Our study failed to corabarate the fact that drainage tube culture results reflects the chance of subsequent infection.

Keywords: Orthopaedic surgery, surgical site infection, drainage tube tip culture.

Introduction
Placing a suction drain following an orthopaedic surgery is usual practice. Closed suction drainage following major, surgical procedure is executed with the aim of preventing wound hematoma and hence reducing the risk of infection. Surgical site infections orthopaedic surgeries are disastrous and often lead to significant morbidity and mortality, in the setting of a foreign body (implant) in situ. Effectiveness of drain tip culture in predicting the wound infection has been tested but results are controversial.

Aim
The aim of this study was to determine whether culturing the suction drain tip or drain fluid in orthopaedic surgery could predict an early wound infection.

Materials and Methods
It is a prospective cum retrospective study of 84 suction drains (84 patients) who underwent Orthopaedic procedures. The drain tip was sent for culture at the time of removing. Cultures from the SSI (surgical site infection) were also collected. The suction drain tip was cut off approximately 5 cm from its far end. The drains were removed, when the fluid drained in the preceding 24 h was less than 30 ml. The surrounding skin was disinfected with 10% aqueous povidone iodine solution before drain removal. 5 cm of the inner part of the tube and 5 ml of the drain fluid, collected under full aseptic precautions. The sample was sent to the microbiological laboratory of the hospital for culture analysis. Any signs of infection, such as wound discharge or dehiscence, fever, chills, or chronic pain, were recorded. The culture outcome, identification of microbe and it's antibiotic susceptibity, and post-operative transition of the serum C-reactive protein level were also recorded in all patients. The wounds were followed up for at least 6 months.

Inclusion criteria: Any Orthopaedic surgeries with drain insitu

Exclusion criteria
a. Patients diagnosed with infective disease or condition

b. Surgery after 10 days of incident of trauma
c. immunocompromised patients
d. Metabolic and genetic disorders
e. Endocrine disorders

Fig 1: Pictures showing culture tubes and post operative drain tube in place

Results

The results are analyzed according to age, sex, other revision operations, type of surgery performed, site of specimen taken suction tip or drain fluid, presence of superficial or deep infection and organism grown on culture and it's sensitivity. We found that no correlation was seen between culture positivity from drain tip and wound infections.

Discussion

Thus no final conclusion can be made from the available studies till date whether to culture the drain tips in orthopaedic surgery is or not. But positive cultures from the drain tips can predict the infection hence helps in controlling them at early stages thus preventing fatal complications. Negative cultures mostly rules out the infection in patients. Hence culture from drain tips should be taken atleast in high risk cases which helps in finding infections early thus preventing complications.

Conclusion

More studies are thus required to analyse the outcome of drain cultures in predicting infections in orthopaedic practice.

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