



## A COMPARATIVE STUDY AND ASSESSMENT OF BURN WOUND SEPSIS USING SURFACE SWAB, FINE NEEDLE ASPIRATION AND WOUND BIOPSY CULTURES.

Prema Dhanraj, Philip Korula, M K Lalitha, & Sulochana Stanley

### DISCUSSION by Mita Prasanna

Use of fine needle aspiration culture (FNA culture) for assessment of burn wound infection has not been reported in literature so far (Ref. Medline Search from 1973 to 1994). Needle aspiration (NA) under ultrasonography and culture has been advocated for liver abscess<sup>1</sup>. Fine needle aspiration has been proved to be a useful method for diagnosing infection in hip-replacements<sup>2</sup> and recurrent tonsillitis<sup>3</sup>. An effort by the authors of the present paper to improve on bacteriological monitoring of burn wound by simpler technique, with dependable specificity and sensitivity is welcome.

The present study of 25 patients is a rather small number for any statistical significance. However my conclusion is that a 'positive' FNA culture of burn wound infection can avoid a painful and more demanding procedure of wound biopsy culture but a negative FNA culture report suggests the need for wound biopsy culture. This conclusion is drawn based on the following facts:

1. Table I shows that more common and pathogenic organisms like psuedomonas, staphylococcus aureus and klebsiella have often been missed by FNA culture though wound biopsy culture has been positive.
2. Table II shows that out of 18 patients with clinical sepsis, 7 reports of FNA culture (i.e. 39%) were negative.
3. Table III shows that in relation to wound biopsy culture, the sensitivity of FNA culture is only 53%. Thus wound-biopsy-proved-positive cultures were found negative on FNA culture in 47% cases.

The reasons for the false negative FNA culture reports could be the blind nature of the technique. The depth of the needle prick cannot be accurately

decided since assessment of depth of burn wounds is still a challenge.

However, the number of false negative results in FNA culture are likely to reduce with more expertise and standardisation of the technique. To prove the efficacy of this method a multi-centre study of larger series of burn patients is suggested.

In the last two decades most published literature are about 'prevention' of wound infection or on immunological aspects. Practice of early burn wound excision and skin grafting has minimised the threat of wound infection effectively.

However, in our country early surgery is not being practised routinely hence bacterial colonisation of wounds is commoner and accurate assessment of bacterial flora is even more important. The microflora of burn wound shows individual and institutional variations<sup>4</sup>; so detection and sensitivity of micro-organism is important in each patient and each burn center. Search continues for a reliable method with high specificity and sensitivity for the same.

In the present study, anaerobes have not been looked for. Occurrence of anaerobic infections is more common than it is detected. In a study done by us<sup>5</sup> anaerobic infection was detected by burn wound biopsy in 26% cases in the first week and 11% cases in the second week, and on both occasions they were missed on surface swab culture. The FNA culture sample being obtained from deeper part of the wound should be able to detect anaerobic infection. Use of FNA culture method in future should be extended to detection of not only anaerobic organisms, but also of fungi. However, in the era of AIDS, invasive investigations like FNA culture should deserve extreme degree of

precautions specially in these immuno-suppressed burn patients.

#### References

- 1 **Barton EN, Daisley H, Gilbert DT, Roberts L.** Diabetes mellitus and Klebsiella Pneumoniae liver abscess in adults. Trop. Geog. Med. 1991; 43:1-2 : 100-4
- 2 **Roberts P, Walters AJ, Mc Minn DJ.** Diagnosing infection in hip replacements. The use of fine needle aspiration and radiometric culture. J Bone & Joint Surg 1992;74(2):265-269
- 3 **Timon CI, Cafferkey MT, Walsh M.** Fine needle aspiration in recurrent tonsillitis. Arch Otolaryngol Head Neck Surg 1991; 117:653-6.
- 4 **Carvajal HF, Parks DH.** Burns in children: Paediatric burn management. Chicago: Year Book Medical Publishers Inc, 1988: 215.
- 5 **Rahman SE.** Profile of Bacterial infection in burn patients - Thesis University of Mangalore 1991:69

#### Author

**Dr. Mita Prasanna** Prof & Head of Burns & Plastic Surgery  
Kasturba Medical College, Manipal