

Candida Albicans Infection in Burn

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Emergence of candida albicans as opportunistic invaders in surgical wounds of long standing has been recently engaging the minds of various workers (Dennis, Miller, Peterson, 1964). It has been recognised that the harmless commensal candida can turn into a deadly foe causing sometimes disseminated fatal candidiasis (Brakhout).

Indiscriminate prolonged systemic or topical use of modern chemotherapeutic drugs in debilitated patients whose resistance is sapped due to prolonged infection lays down the basis for fungal infections. Candida albicans infection is more often seen as compared to other types of fungal infection probably because it is a natural inhabitant of human gastrointestinal tract. This organism may enter the circulation through any breach in the continuity of epithelium and multiplies rapidly into the circulation producing not only morbidity but also, not infrequently, mortality.

Candida albicans is a fungus which reproduces by budding, forming separate pseudomycelia. It is the commonest species in the monilia family which produces submerged colonies in sabouroud's acid broth media (Connant et al). It ferments Dex-

trose and Maltose with acid and gas production but fails to ferment lactose (De & Guever).

Nash Foley & Pruitt (1970) emphasised that this organism invades viable subcutaneous tissues and vessels while colonising on the surface of burn wounds. The fact that fungal infection may occur in burn wounds was first reported by Foley, Jerry and Shuck (1968) who demonstrated phycomycotic infection in the burn wounds of fingers in a severely burnt patient. This infection was seen to cause extensive ischaemic necrosis of such degree that the fingers had to be amputated. Vascular invasion was found to be a characteristic feature of phycomycotic infection which resulted in tissue loss beyond the area of previous injury.

Dennis, Peterson, Fletcher (1968) while stressing the importance of fungi as opportunistic invaders pointed out that these infections were over looked by histopathologists, bacteriologist and mycologist in the past because they did not take ordinary stains or grow easily.

Krause, Matheis & Wilf (1969) administered 10¹² cells of candida albicans

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orally to healthy volunteers to investigate their pathogenicity and found that number of candida cells, the virulence of specific strains, and the state of body defence mechanism were the three most important factors in the production of disease due to this organism.

Nash Foley and Pruitt (1970) demonstrated two cases of disseminated candidiasis in burn patients in which the fungi were found colonising at the surface of the wound and invading viable subcutaneous tissues and vessels on antimortam biopsy of the burn wounds. Pruitt and Curreri (1971) did burn wound biopsy in 70 patients treated topically by higher antibiotics. Fungal colonisations were revealed over 66% cases of full thickness burn and only over 17% patients of partial thickness burns.

Brak & Nash (1971) reported 30 cases of invasive multifocal fungal infection in burn wounds.

Pruitt and Foley (1973) demonstrated the frequent occurrence of fungal, bacterial and viral infections in burn wounds by burn tissue biopsies.

Present authors were attracted towards this comparatively less explored topic and they have tried to find out the incidence of candida albicans infection in burn wounds of patients admitted in Patna Medical College Hospital.

Method and Material :

Total number of forty cases of burn

drawn from different age groups and sexes were taken up for study.

These 60% of cases were males and 40% were females. The burn wounds ranged from superficial to deep but more cases (67.5%) of deep burn were included in this series; so far the etiology of the burn was concerned 67% of cases belonged to flame burn, 25% to electric burn, 5% to scald injuries, 2.5% to chemical burn and 2.5% were irradiation burn. On admission a detailed history of the cases along with findings of their clinical examination were recorded. The following investigation were done to detect the presence of candida albicans in the wounds.

- (a) Culture of the discharge from the area of burn and/or of macerated wound tissue in—
 1. Sabouroud's agar media, } Every
 2. Babouraud's acid broth } 10 days
- (b) Histopathological examination of the tissue excised from the area of burn along with a little healthy tissue from the margin after—
 - (i) Crazzi's haemotoxyline stain every 10 days.
 - (ii) Comori's methenamine silver stain every 10 days.

Observations and Conclusion

Out of 40 cases observed candida albicans infection was found in only three cases. The positive cases belonged either to the age group 0-10 years or 51-70 years.

Two-third of the positive cases belonged to flame burn and 8% cases to electric burn. In none of the superficial burns candida albicans infection could be deciphered. Whereas, in 7.5% cases of candidiasis observed in the present series, 66% were found in cases of severe burn having more than 30% of area of injury and the rest were detected in cases of moderate burns. 33% of the cases afflicted by this fungus had cachetic health and 66% had poor health. The infection was usually observed from the end of third week to 5th or 6th week. The commonest presenting features were pyrexia, disorientation, suppression of urine, shock, toxæmia. Wound of the most positive cases had creamish yellow discharge with offensive to yeast like smell. Almost all the cases stricken by this fungus had the previous history of administration of higher antibiotic and/or steroid systemically or topically, for prolonged periods.

Thus, it may be concluded that patients

in extremes of ages having deep extensive burn are likely to be infected by candida specially when their resistance is sapped after prolonged and indiscriminate use of higher antibiotics and steroids. If the treating surgeon cares to search for this infection in chronic convalescing patients of deep burn many valuable lives can be saved by timely recognition of this infection and institution of proper therapy.

Summary

1. Forty cases of burns were studied to detect the incidence of possible secondary infection by candida albicans.

2. In the seven & half percent of cases candida albicans infection have been detected.

3. In all the above patients, it was found that patients were run down and their immune mechanism were suppressed due to prolonged used of modern antibiotics and/or steroids.

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