

sponding data demonstrated no statistically significant effect of mechanical injury on the change in wound area ($p > 0.05$). This clearly indicates that any change in the wound area was not affected by mechanical stress imposed during the study, and that the data solely represents the difference between covering with SACCHACHITIN membrane and with gauze. Wound healing was thus accelerated when SAC-

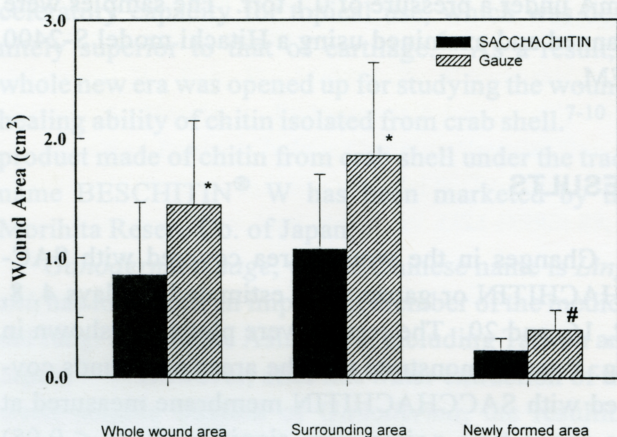


Fig. 2. Comparisons of the change of whole wound area, the area of newly-formed epithelia, and the surrounding area between that covered with SACCHACHITIN membrane and that with gauze on the 12th day. (*one-side paired t -test for significant difference with $p < 0.05$; # two-side paired t -test for insignificant difference with $p = 0.05$)

CHACHITIN membrane was used to cover the wound compared to when gauze was used.

Histological examination of the wound tissue was conducted on days 4, 7, and 16. On the 4th day (Fig. 3a), a layer of exudate composed of polymorphonuclear cells and fibrous protein was found to have accumulated beneath the SACCHACHITIN membrane covering. Many new blood vessels had formed in the area close to the surface of the lesion, as well as underneath the newly growing epithelia. Inside the larger blood vessel, red blood cell stasis and margination of white blood cells were observed. A significant number of macrophages were present around the wound area. These phenomena indicate an acute inflammatory reaction and formation of granuloma granulation tissue. Fig. 3b shows similar phenomena for the wound area covered with gauze, except that a smaller amount of macrophages was observed.

By day 7, the growth of granuloma granulation tissue had become more apparent, and the presence of polymorphonuclear cells was observed in wounds covered with SACCHACHITIN membrane. Cell densities were higher and the matrix materials in the extracellular region had decreased. A photomicrograph is shown in Fig. 4a. In Fig. 4b, the existence of granuloma granulation tissue can be observed but not very clearly. In addition, the cell density was correspondingly lower in the wound covered with gauze compared to that covered with SACCHACHITIN membrane.

(a)



(b)

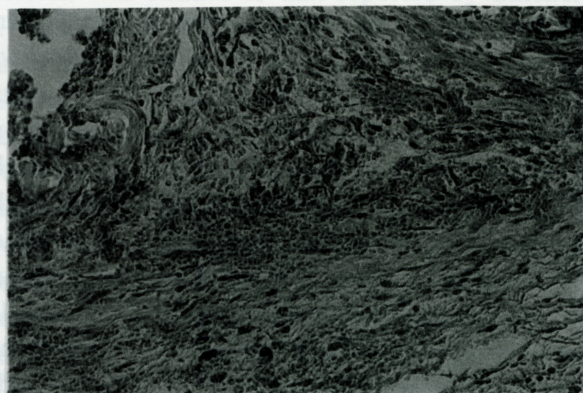


Fig. 3. Photomicrographs ($\times 100$) of the wound area and its surrounding tissue covered with either SACCHACHITIN membrane (a) or gauze (b) for 4 days.