

Comparative efficacy of soap water, spirit, acetone and ether in removing the adherent material formed during and after removal of micropore tape

Sir,

Micropore tapes commonly used in medical practice, are non-expansible and contain a polyacrylate adhesive glue. A blackish adherent material is formed at the edges after prolonged application of these tapes. This material is not removable by normal bathing and the amount increases even after the removal of tapes. This study was undertaken to standardize a method to remove and prevent the formation of adherent material formed during the application and after removal of micropore tapes.

The study was conducted in ten volunteers by the application of five tapes of size 2.5 x 2.5 cm on the extensor aspect of the arm. A space was left between the 2nd and 3rd tapes as a negative control. All tapes were removed after 48 hours and were cleaned by a single person applying four horizontal strokes unidirectionally using one of the following agents: soap water, spirit, acetone or ether. The presence of the adherent material was graded as 0-nil, 1-mild, 2-moderate, and 3-marked [Figure 1]. The previously covered areas were observed for 48 hours after the removal of tapes. The study was analyzed using analysis of variance testing. A small amount of material was scraped with a scalpel blade to which 10% KOH was added, warmed and observed. A tape was also stuck on the window pane to observe whether similar material accumulated at the edges of inanimate objects.

The results of the study are shown in Table. The efficacy of acetone and ether in removing the adherent material when compared to soap water and spirit was statistically significant



Figure 1: Presence of blackish adherent material at the edges

($P < 0.05$). No adherent material was found after 48 hours over the sites cleaned by ether or acetone but the adherent material persisted and even increased over the sites cleaned by spirit and soap water and also over the control site. A similar blackish margin appeared over the window pane, the material of which was not soluble in 10% KOH.

The study was conducted on ten volunteers. All of them developed blackish adherent material at the edges of the tape-covered areas after 48 hours. The glue used in micropore tape is made up of ultraviolet (UV)-cured acrylate polymers. [1] The tapes are non-expansible and the glue tends to move towards the periphery, and possibly beyond the margins of the tape due to stretching of the skin. The dirt-like material which is formed, gets deposited along the edges because of the adhesive property of glue. We initially thought that this blackish material is predominantly due to sebum and keratin but a similar material was observed following the removal of the tape from a window pane, suggesting that the predominant material may be dirt. As the material did not dissolve in KOH, keratin may not be the major constituent. However, it is possible that keratin and sebum are present in this blackish material formed around the edges around tape-covered areas in humans in addition to dirt.

Ether and acetone completely removed the adherent material formed and prevented its accumulation. In contrast, soap water was not able to remove the material while spirit was not as effective as ether or acetone. Ether and acetone are solvents which can break and remove the cross polymers present in the adhesive. They are non-allergenic, do not irritate the skin, are easily available and can be stored in refrigerators. Patch testing is commonly performed by dermatologists. The adherent material formed at the edges is usually left undisturbed, which can cause cosmetic embarrassment. We recommend that the patch test sites

should be cleaned routinely, either with ether or acetone following the removal of the tape. These chemicals can also be used whenever the tape is removed, after its application for a prolonged duration to prevent the formation of the cosmetically unacceptable blackish material.

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