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Modified Tzanck Smear to Evaluate For Herpes Simplex Virus

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To the Editor:

Tzanck smear has been historically used by dermatologists to diagnose cutaneous dermatoses including vesiculobullous and granulomatous diseases. A simple, rapid, and cost-effective tool used at the bedside, the Tzanck smear is commonly performed as an adjunct to the physical examination with experienced practitioners consistently achieving a sensitivity and specificity of over 80% and 90% respectively.[1,2] In certain circumstances, however, the resources necessary to perform a Tzanck smear may be limited. Clinicians working in such environments, thus, may benefit from understanding and working with modified diagnostic techniques. We highlight the use of a modified Tzanck smear to diagnose Herpes Simplex Virus (HSV) in a 54-year-old male with a past medical history of childhood varicella and previous vaccinations with Zostavax and Shingrix. The patient noted a new spot on the lower back present for a few days associated with a burning sensation. A physical exam revealed a 15 mm x 6 mm erythematous patch with five overlying 1-2 mm vesicular pustules on the mid-lower back (Figure 1). The lesion was suspicious for a herpetic etiology (Figure 2) and thus a modified Tzanck smear was performed using a sterile number 15 scalpel blade to unroof the vesicle, scrape the base, and smear onto a clean glass slide. Tap water was then placed on the sample and the tip of the Viscot® pre-surgical mini skin marker was dipped into the edge of the water to provide a staining medium. The sample was subsequently cover slipped and examined under a light microscope at 40X power. Multinucleate giant cells were visualized using the above mentioned modified Tzanck smear and led to the identification and diagnosis of HSV (Figure 3). The patient was placed on Valtrex 500 mg PO TID x 7 days for treatment.

FIGURE 1. 15 mm x 6 mm erythematous patch on mid-lower back.

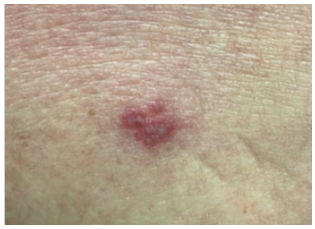
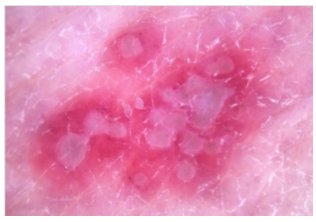
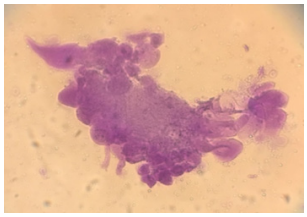


FIGURE 2. View of erythematous patch on mid-lower back via dermatoscope.



Our case represents an opportunity to review the applications and techniques of the Tzanck smear in current practice. Solomon et al first described the utility and effectiveness for detecting HSV using Tzanck preparation as compared to viral isolation.[3] Further use of Tzanck smear has expanded to include diagnostic applications for a variety of dermatological conditions including herpetic infections, pemphigus vulgaris, bullous pemphigoid, and basal cell carcinoma. Currently, use of bedside Tzanck has been largely replaced by other non-invasive diagnostic modalities such as Dermatoscopy. But Tzanck preparations are still clinically applicable as Durdu et al have noted similar diagnostic accuracy of pigmented skin lesions when compared to Dermatoscopy.[4] Typically, a Tzanck smear is performed by using a sterile number 10 or 15 scalpel blade to unroof a vesicle and scrape the base, and smear it onto a clean glass slide. The sample is fixed to the slide with gentle heat, air drying, or by using a methanol-containing fixation solution. The slide is then stained with either Giemsa, methylene blue, or Wright's stain, and examined under the microscope for multinucleate giant cells. In contrast, our modified Tzanck smear was performed as previously described using the tip of the marker to stain our sample. Air drying was also used instead of methanol fixation. In summary, we believe adapting to available resources was critical to our diagnosis as not every setting will be conducive to standard medical practice. In resource limited environments, practitioners should be willing to utilize a variety of novel approaches to arrive at the appropriate diagnoses.

FIGURE 3. Light microscopy using oil immersion lens (100x magnification) showing multinucleate giant cells after modified Tzanck smear technique.



Thus, clinicians can use this modified technique to diagnose their patients with HSV or other similar vesiculobullous and granulomatous lesions in non-conventional settings; as Tzanck smear is a quick cost-effective procedure with relatively high diagnostic sensitivity and specificity.

DISCLOSURES

The authors have no conflicts of interest to declare.

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