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Clinicopathological study of vesiculo bullous lesions of skin in a tertiary care hospital

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Abstract
Tzanck smear cytology though it is an old and simple test, it will provide much diagnostic value in the case of vesiculo bullous lesions. It was first used by Arnault Tzanck in 1947 in herpetic infections. To determine diagnostic accuracy of Tzanck smear cytology the results were compared with histopathological findings of vesiculobullous lesions.

Keywords: Cytology, histopathology, Tzanck smear, vesiculobullous

1. Introduction
Vesiculobullous disorders represent a heterogenous group of dermatoses [1, 2]. Cytological diagnoses of vasiculobullous lesions are very helpful for early diagnosis [1-3]. It is done by tzanck smear preparation. Tzanck smear cytology is a fairly sensitive and patient compliant technique for rapid diagnosis of bullous skin lesions if performed skilfully and with perfection [4, 5]. Tzanck smear is a quick less-invasive method and it involves examining a smear prepared from cellular material of the eroded lesion [1, 2, 5, 6]. A typical Tzanck cell is a large, rounded keratinocyte with a hypertrophic nucleus, hazy or absent nucleoli and abundant basophilic cytoplasm, which is deeper peripherally on the cell membrane due to cytoplasm condensation at the periphery, leading to a perinuclear halo [7, 8]. The diagnostic values of cytological smears (Tzanck smears) were correlated with histopathological findings.

2. Material and Methods
One hundred and sixty five (165) cases were included in the study which was submitted to our Department of pathology Guntur medical college, Guntur, A.P. from July 2016 to June 2019 for over a period of three (3) years. Tzanck smears preparation for cytological study and skin biopsy for histopathological examination were done in all patients of vesiculo-bullous lesions. Tzanck smears were done to obtain material for cytological examination. Preparation of tzanck smear is a very simple. It should be prepared from a fresh vesicle. The material is obtained from unroofing of vesicle and transferred on a glass slide. The smears were prepared, air dried and stained with Giemsa stain. If Papanicolaou stain is to be used, the slide should be immediately fixed in alcohol. Stained smears were studied under microscopy for cytological analysis.
Skin biopsies of all the cases were obtained and processed with routine histopathological processing and slides were prepared for histopathological examinations. All Tzanck smears and skin biopsies of vesiculobullous disorders irrespective of age, sex and associated diseases were included for the study. Stastical analysis of various vesiculobullous lesions in relation to age, sex, cytological (tzanck) and histopathological findings were studied.

3. Results
Among total 165 patients, 87 were males and 78 females. Most of the patients were between 1-10 years of age. The incidence decreased after 5th decade. In males younger group has shown more number of cases when compared with females. Older females are more affected when compared with older males (Figure 1).

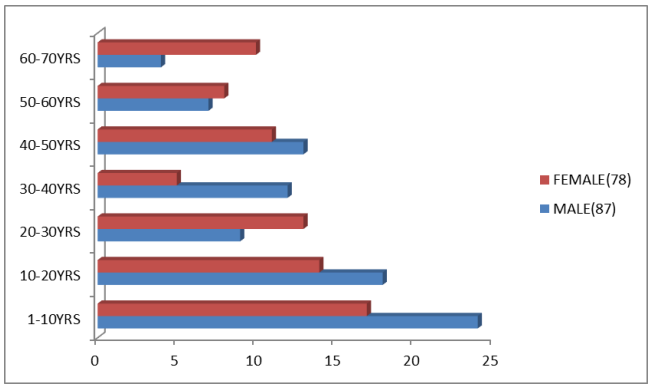

Fig 1: Distribution of study of age and sex

Tzanck smear and skin biopsy for histopathological study was performed for all cases with vesiculo-bullous skin lesions. Majority of cases were due to infections. Most common were 76 cases of herpes infections and bacterial infections like bullous impetigo which accounts for 20 cases. Second group of disorders common after infections were immunological disorders like phemphigus and its variants which accounts for 37 cases (Table 1).

Table 1: Study distribution of various vesiculo bullous disorders

S. No	Diagnosis	No. of cases
1	Hererpes simplex	35
2	Varicella zoster	22
3	Herpes zoster	19
4	Epidermolysis bullosa	05
5	Pemphigus vulgaris	18
6	Bullous pemphigoid	10
7	Pemphigus foliaceous	09
8	Linear IgA dermatosis	03
9	Herpes gestationis	03
10	Dermatitis herpetiformis	15
11	Subcorneal pustular dermatosis	02
12	Grovers disease	02
13	Drug induced bullous pemphigoid	02
14	Bullous impetigo	20

Cytological examination with tzank smear preparation was done and most of the lesions shown acantholytic cells with associated inflammation (Figure 2). Few cases also had shown multinucleated giant cells.

Histopathological study of all vesiculobullous lesions were studied (Figure 3 to 7). The findings of histopathological diagnosis was well correlated (87%) with cytological diagnosis

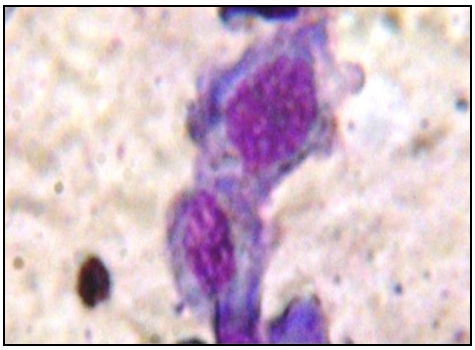

Fig 2: Tzanck smear showing acantholytic cells.

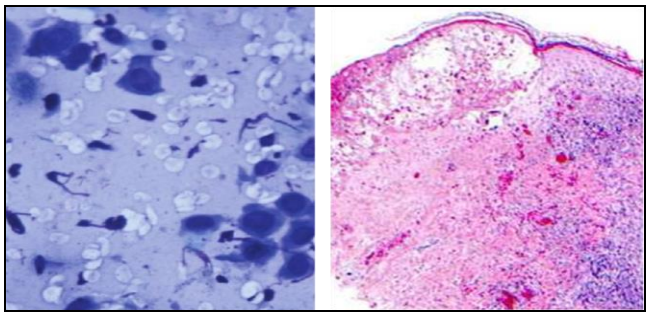

Fig 3: Herpes Simplex Tzanck cytology and Histopathology

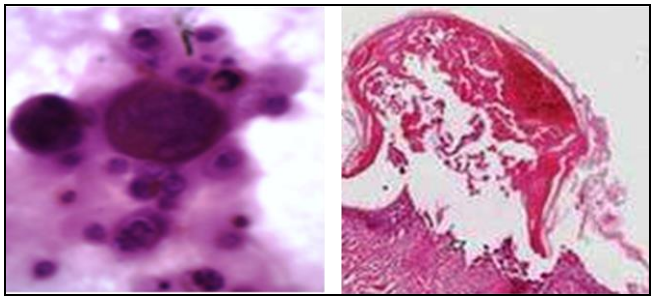

Fig 4: Chicken pox- Cytology and Histopathology

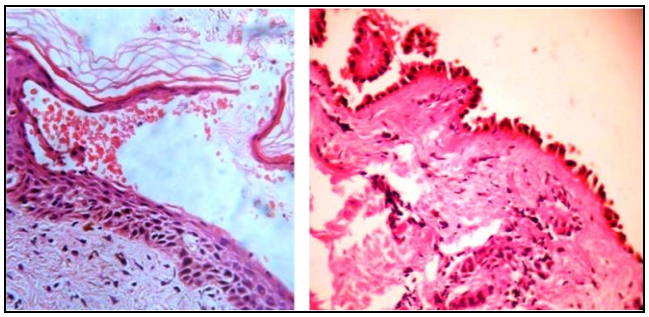

Fig 5: Histopathology- Pemphigus foliaceous showing sub corneal blister (Left), Pemphigus vulgaris showing intraepidermal blister (Right).

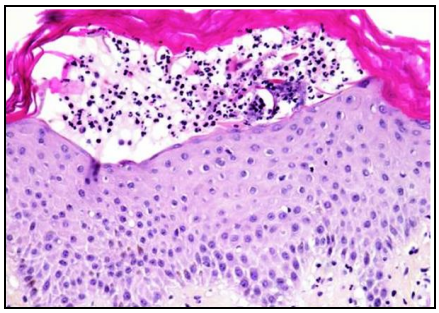

Fig 6: Histopathology- Subcorneal pustular dermatosis

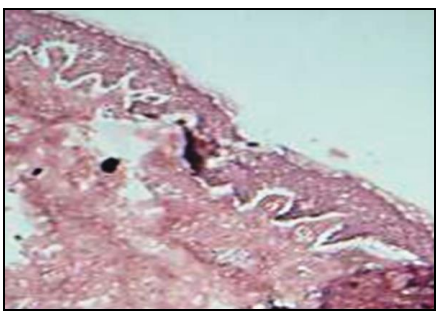

Fig 7: drug induced sub epidermal blister

4. Discussion

Acantholysis is the mechanism observed in vesiculobullous lesions and provides diagnostic value of tzanck smear [1, 3, 5]. In acantholysis cells remains intact but they are not attached to each other. These individual cells are observed under microscope after Tzanck smear preparation [1, 3, 5].

Among all vesiculo bullous lesions studied majority are infections and immunological disorders [4, 5]. Tzanck smear positivity was 55% in the case of viral infections and immunological disorder shown 68% positivity. Studies reporting the diagnostic value of Tzanck smear in various erosive and vesiculobullous lesions are limited, especially in the Indian literature. Although Tzanck smear cannot substitute the standard diagnostic methods, in an experienced hand, it can aid in establishing the clinical diagnosis with ease and rapidity and can serve as an adjunct to the other diagnostic methods [1, 3, 6].

All the lesions were subjected to histopathological examination and the results were well correlated with cytological findings. In our study results of Cytological examination by tzank smear preparation and routine histopathological examination were compared. The results were well correlated in 87% of cases. This was similar to other studies like Durdu *et al*. and Shaheen *et al*. [1, 3, 4, 8, 9].

5. Conclusion

Acantholysis is a key phenomenon in various skin diseases. If performed skilfully and with perfection cytological study using tzanck smear examination is an inexpensive, useful, and an easy diagnostic tool for vesiculo-bullous lesions of skin diseases. Histopathological study along with tzanck smear study can be utilized to verify the diagnosis. The Concordant results between cytology and histopathology was very good in majority of cases.

The sensitivity and the specificity of Tzanck smear test findings for certain diseases could not be calculated because of an insufficient number of patients. Results of which will bear some impact on patient management and disease prognosis.

6. References

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