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Role of Imprint Cytology in the Diagnosis of Malignant Lesions- A Hospital Based Study

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Abstract
Background: *Imprint cytology is a simple, cost effective and rapid procedure for the diagnosis of various malignant lesions. However histopathological examination remains the gold standard for the diagnosis of the malignant lesions.*
Methods: *The present study consisted of 100 resected specimen received in the department of pathology over the period of 18 months from May 2016 to November 2017. Imprints were made by touching the clean glass slides over the involved area of the resected specimen and smears were stained with Papanicolaou (PAP) stain.*
Results: *The present study included 47% were males and 53% were females. Out of the total 100 specimen, 78% were found to be malignant and remaining 22% were benign. The accuracy of the imprint cytology for the diagnosis of malignant lesions was found to be 90% and for benign lesions it was 100%.*
Conclusion: *Imprint cytology is a cheap and rapid method for the diagnosis of malignant lesions.*
Keywords: *Imprint cytology, Malignant lesions.*

Introduction

Imprint cytology is a simple procedure by which valuable morphological details of the cell can be obtained. It is a rapid procedure that can be done even in underdeveloped infrastructure. Dudgeon and Patrik were the first to describe the use of imprint smears of fresh tissues in the rapid microscopical diagnosis of tumours.[1] Intraoperative cytology can act as a good complement to histopathology and can be of benefit for rapid preliminary diagnosis & surgical management planning. It has a high diagnostic accuracy which can be further increased if diagnosis is extended to and confirmed by gross and radiological findings. The ability to deliver an immediate diagnosis by imprint cytology makes it

an important part of treatment. Unnecessary radical surgeries for benign diseases or inadequate surgery in case of malignant disease may be thus avoided. The most important indication of intraoperative cytology is to establish or confirm diagnosis rapidly. The simplicity, speed and cost effectiveness along with its ability to maximize cell recovery from very small tissue piece makes touch imprint cytology a valuable resource for virtually every aspect of experimental and diagnostic medicine.[2] As compared to frozen section, it is reliable and cost effective method, provides excellent cellular details.[3]

Material and Methods

The present study was conducted in the department of Pathology over the period of 18 months from May 2016 to November 2017 and 100 resected specimens were included in the study. Relevant clinical details and history was noted. The fresh and unfixed specimen were taken and bisected and blood & fluid was mobbed off from the surface. On the cut surface, a clean dry glass slide was touched firmly. Then slides were then fixed immediately in ethanol and then stained with Papanicolaou (PAP) stain. All the cases were then analysed.

Results

A total of 100 cases were examined, out of which 47% were males and 53% were females (Table 1). The range of age varied from 10 years to 90 years (Table 1).

The various organs that were involved in the study are depicted in table 2. The most common organ involved was lymph node (30%) followed by thyroid which included 17% cases. Colon and ovary involved 6% cases each.

Out of the total 100 cases, 78% were found to be malignant and 22% were benign. The accuracy for benign and malignant lesions was found to be 100% and 90% respectively.

Table 1: Basic demographics

		No. of cases	Percentage (%)
Gender	Male	47	47
	Females	53	53
Age (in years)	10-20	5	5
	21-30	1	1
	31-40	2	2
	41-50	3	3
	51-60	4	4
	61-70	20	20
	71-80	29	29
	81-90	36	36

Table 2: Organs and the number of cases

Organ	No. of cases
Lymph node	30
Thyroid	17
Breast	13
Kidney	11
Endometrium	10
Soft tissue	7
Colon	6
Ovary	6

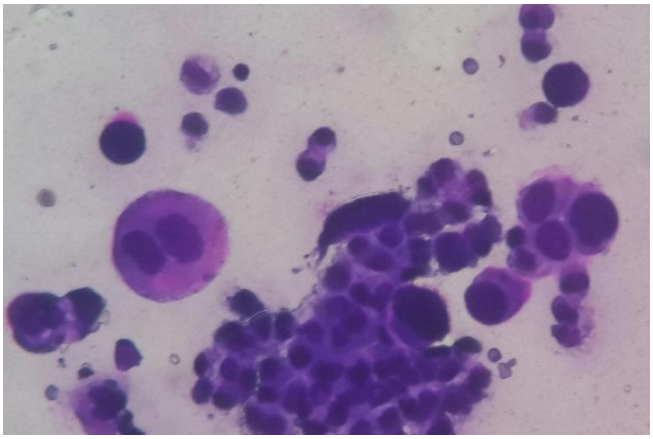

Fig 1: Touch imprints cytology of breast carcinoma

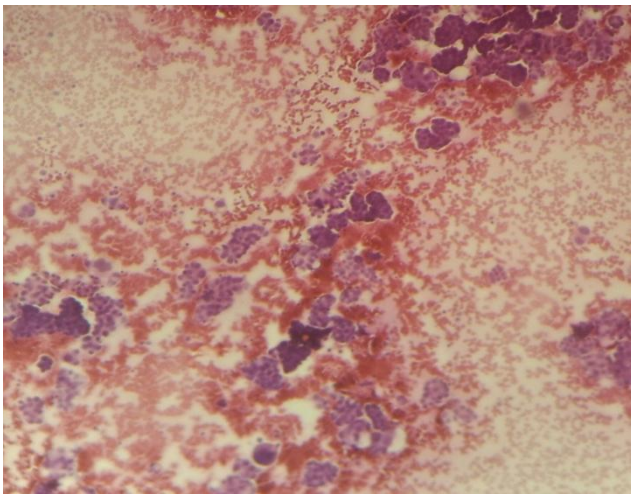

Fig 2: Touch imprint cytology of lymph node showing metastatic adenocarcinoma

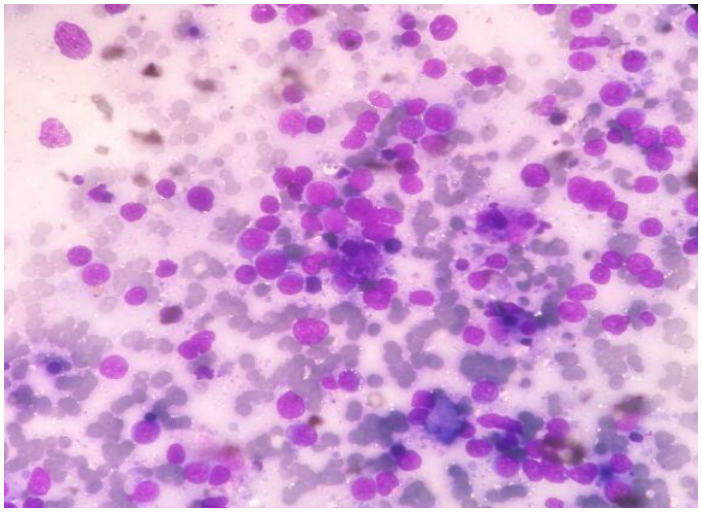

Fig 3: Touch imprint cytology of lymph node showing lymphoma

Discussion

In the present study, females formed the majority of the cases (n=53). The results were consistent with the study by Harnish et al, 2014.[1] Similar results were also established by other studies.[4,5]

In our study, benign lesions involved younger age group whereas malignant lesions were found in individuals of old age. These findings were comparable with the study by Gore et al, 2017.[6] Another study by Orki et al, 2006 also found the same results.[7]

Majority of the lesions in the present study were malignant (n=78). Similar results were found in other studies.[1,5] Lymph node was the most common system involved in our study similar to the study by Harnish et al, 2014.[1]

For the malignant lesions, the overall accuracy was found to be 90% in the present study. These results were comparable with the other studies.[1,5,8,9,10]

The overall accuracy for the malignant lesions was 100% in our study. The results were in consistent with the other studies.[1,9]

Conclusion

Imprint cytology is a simple, rapid, cost effective and inexpensive technique that can be performed even in underdeveloped infrastructure. Not being very specific in all the cases, imprint cytology can still be used as an essential diagnostic tool for the rapid evaluation of the lesions. When used along with histopathological examination, it further increases the diagnostic ability.

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