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# Role of Cytology in Evaluation of Cutaneous Metastases – A Prospective and Retrospective Study by FNAC

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**Abstract:** ***Cutaneous metastasis from internal malignancies is a rare clinical presentation and pose difficulty in diagnosis. It is uncommon and can occur due to a known malignancy or due to occult primary or in conjunction with the primary tumor. Though clinical examination aids in the diagnosis, FNAC is the first line diagnostic procedure. FNAC is an inexpensive, simple and fast diagnostic tool for the diagnosis of cutaneous metastasis .We hereby analysed about 15 cytology cases retrospectively and prospectively with the aid of clinical presentation and various diagnostic modalities to record the incidence of cutaneous metastases of internal organs in the Department of Pathology, Stanley Medical College. Primary cutaneous lesions were excluded from the study.***

**Keywords:** Cuatneous Metastatsis FNAC

## 1. Introduction

Cutaneous metastasis represents tumor infiltration of the skin from a known or unknown primary and carries a poor prognosis. Early diagnosis is important as an appropriate treatment protocol can be instituted to such patients. Incidence of cutaneous metastasis from review of literature shows that it ranges from 0.7% to 10.4 %.(1). It can occur as a late manifestation of a known primary or as an early manifestation of recurrence.

## 2. Methods and Materials

A retrospective and prospective evaluation of fine needle aspiration cytology of 15 patients with cutaneous metastasis with internal malignancies were taken up for this study.The study was done for a period of one year. Clinical evaluation,imaging studies, fine needle aspiration cytology and histopathological examination were reviewed. Aspiration was done using 23G needle and the material was transferred on to the slides,fixed in isopropyl alcohol and stained with H& E. Histomorphological examination was done for these cases for confirmation of the diagnosis. .

## 3. Result

A total of 15 cases were taken up for the study and the age group ranged from 45yrs to 70 yrs with a higher incidence of cutaneous metastasis in females as compared to males. The most common site was chest wall and the common primary tumor to metastasize was breast carcinoma. The size of the tumor varied from 2 to 5cms. Most cases presented as solitary nodules.

## 4. Discussion

Cutaneous metastases, the first sign of an internal malignancy accounts to 2% of all skin tumors with poor prognosis (2). Metastases to skin is very rare with regional spread through lymphatics and distant metastasis through hematogenous route (3). As the clinical manifestations are subtle, it poses a high index of suspicion, stressing the need for early recognition and diagnosis so as to institute a prompt treatment plan .FNAC is a minimally invasive and a first line diagnostic modality with an added advantage of being safe, rapid and simple in the diagnosis of cutaneous metastatic nodules and obviates the need for unnecessary surgical intervention (4). 19 cases of cutaneous metastases were analysed using FNAC as an important diagnostic tool in a study conducted by Karki S et al (5).

Benmously inferred from his study that the age at presentation was from 53-96 with a 4frtgrmedian of 63.5yrs for males and 76.5yrs for females (6). Most cutaneous metastasis occurred in the fifth decade in the present study. The time interval between the onset of the primary tumor and the development of metastatic deposit due to such primary tumors ranged from 3months to 3years with the shortest duration of 6months and longest duration of 3yrs.

Women are prone to develop cutaneous metastasis from the breast, ovary, oral cavity, lung and large intestine, while in men the most common metastasis is from the lung, large intestine, oral cavity, breast, esophagus, pancreas, stomach and liver.(2). In our study cutaneous metastases was commonly seen in females with breast carcinoma.

Skin metastases commonly occurs close to the primary site of tumor such as abdominal wall in gastrointestinal tumors, chest wall in lung carcinoma and back in renal cell

carcinoma.(7) . In a study conducted by Krathen et al breast carcinoma was found to be the most commonest tumor to metastasize to the skin with an estimated incidence of 24% (8). Cutaneous lesions in breast carcinoma may present as nodular carcinoma, inflammatory or erysipeloides, telangiectatic and as en cuirasse carcinoma due to lymphatic dissemination to the skin(9 ) The most common tumor to produce cutaneous metastasis was breast carcinoma in our study.

Study conducted by Srinivasan showed that cutaneous metastases is common in the chest wall and abdomen followed by head and neck.( 10). Pak.H.Y et al observed that the incidence of cutaneous metastases was 23% in the back, 21% in the upper extremities and 12% in the scalp( 11). In our study we inferred that the most commonest site of occurrence was the chest wall accounting to 53 % as the predominant primary tumor was from the breast .

Metastatic nodules from RCC, serous cystadenocarcinoma of the ovary and pleomorphic sarcoma were some of the rare lesions which we reported. In a study conducted by Basu et al, cutaneous metastases from gynaecological malignancies was found to be quite rare ( 12). Metastasis from renal cell carcinoma is also rare accounting to 3% and is found to be more common in males/with increased male predilection. (13 ).

Though these lesions have no specific appearance they can present as nodules, plaques, papules, proliferative growth and ulcers. Hager et al in the year 1999 has reported cases such as renal cell carcinoma and breast carcinoma presenting as pyogenic granuloma like lesions.(14 ) .Most of our cases included in this study presented as solitary nodules.

Histomorphological confirmation was done in 10 of the 15 cases and clinical follow up was done in 10 cases. In our series 4 patients died within a period of 8months to 1 year. Metastatic tumors differ from primary skin tumors by the typical histological picture, epidermal connection, intraepidermal, in situ component and by the presence of the benign counterpart of the lesion.(1,9).

Expected survival in such patients with cutaneous metastases is very short accounting to less than a year. (7)

## 5. Conclusion

Cutaneous metastases is a late manifestation of internal malignancy and carries a grave prognosis with short survival. FNAC, being a cost effective, simple and rapid procedure aids in a fast diagnosis obviating the need for surgical intervention.

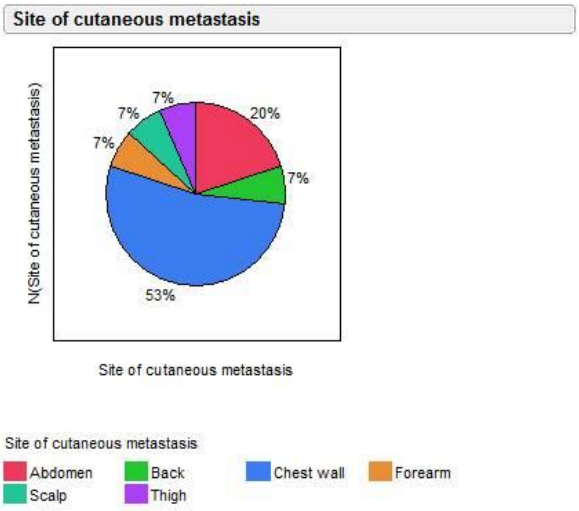


**Figure 1:** A pie diagram displaying the primary site

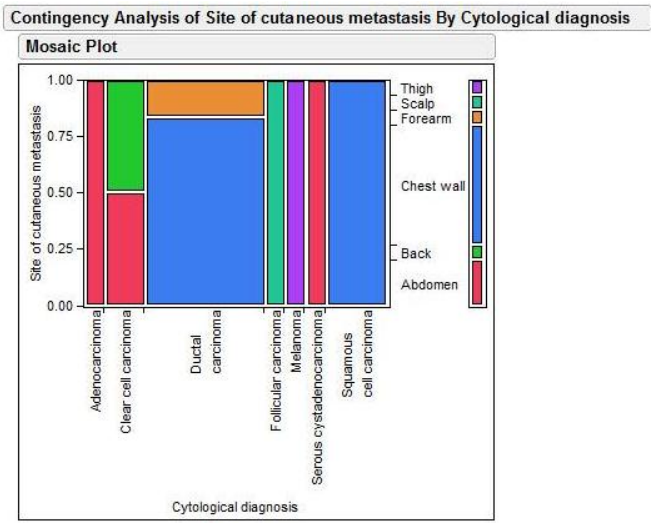


**Figure 2:** Mosaic plot of Site of cutaneous metastasis

**Table 1**

| S. No | Age/Sex | Primary malignancy | Cytological diagnosis | Histological diagnosis | Site of cutaneous metstasis | Course/Follow up |
|---|---|---|---|---|---|---|
| 1 | 45/F | Breast cancer | Infiltrating ductal carcinoma Grade 2 | Infiltrating ductal carcinomaNST Type | Forearm. | Remission after 1 year |
| 2 | 52yrs/M | RCC | Positive for malignancy | RCC | Abdomen | Death/8months |
| 3 | 68yrs/M | Stomach Cancer | Gastric adenocarcinoma | Gastric adenocarcinoma | Abdomen | Lost to follow up |
| 4 | 58yr/M | Melanoma foot | Melanoma | Melanoma | Abdomen | Death/6months |
| 5 | 48yr/F | Breast cancer | Ductal carcinoma Left breast | Infiltrating ductal carcinoma grade 2 | Chest wall | Remission/1year |
| 6 | 45yr/F | Breast cancer | Left breast | Infiltrating ductal carcinoma Grade2 | Chest wall | Remission/1yr |
| 7 | 40yr/F | Breast cancer | Right breast | Infiltrating ductal carcinoma Grade 2 | Chest wall | Remission/1yr |
| 8 | 56yr/F | Breast cancer | Left breast | Infiltrating ductal carcinoma Grade 2 | Chest wall | Remision/3yrs |
| 9 | 58yr/F | Breast cancer | Right breast | Infiltrating ductal carcinoma Grade 1 | Chest wall | Remision/1yrs and 2months |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 50yr/M | Thyroid cancer | | Follicular carcinoma thyroid | Scalp | Death/1yr |
| 11 | 60yr/F | Ovarian cancer | Right ovary | Serous carcinoma | Abdomen | Death/6months |
| 12 | 55yr/F | Melanoma | Right foot | Melanoma | Abdomen | Lost follow up |
| 13 | 51yr/M | Pleomorphic Undifferentiated sarcoma | Right lower leg | Pleomorphic Undifferentiated sarcoma | Left abdominal wall | Remission /6months Metastases to lung |
| 14 | 66yr/M | Adenocarcinoma | Carcinoma esophagogastric junction | Positive for malignancy Adenocarcinomatous deposit | Epigastric region | Remission /1yr |
| 15 | 69yr | NonHodgkins lymphoma | Multiple lymph node involved | NonHodgkins lymphoma | Right forearm | Remission/1yr |

**Figure 3 (a):** Left lateral abdominal wall metastasis from Right leg Pleomorphic sarcoma

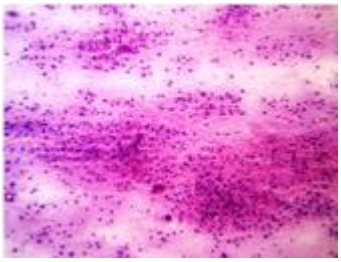

**Figure 3 (b):** 10x: Pleomorphic cells and tumor giant cells in singles from Pleomorphic sarcoma

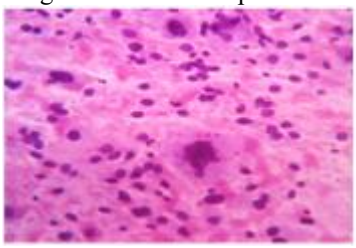

**Figure 3 (c):** 40x: Pleomorphic cells with tumor giant cells

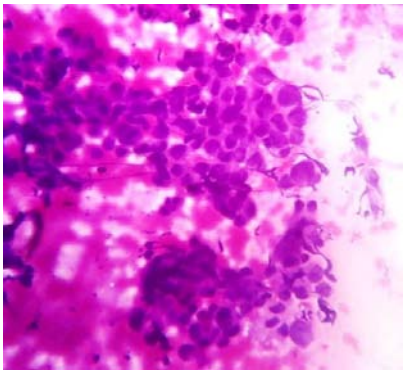

**Figure 4:** 40X Cluster of metastatic squamous cell carcinomatous deposit on the chest wall

**Figure 5 (a):** Metastatic deposit over abdomen from malignant melanoma of the right foot

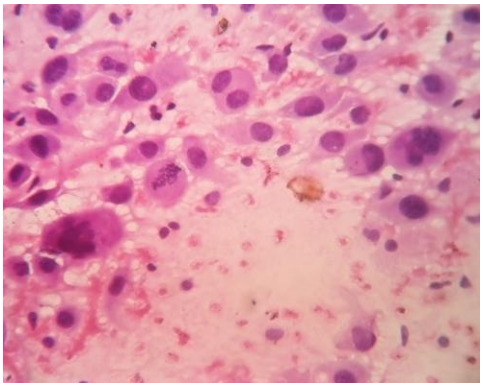

**Figure 5 (b):** 40XCluster of metastatic malignant melanoma cells with eccentrically placed nuclei,binucleate and multinucleate forms with extracellular melanin pigment

**Figure 6(a):** Known case of RCC presenting as anterior abdominal wall mass

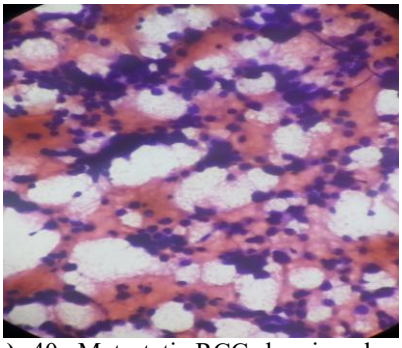

**Figure 6(b):** 40x.Metastatic RCC showing clear cells with vacuolated cytoplasm

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