Research Article

Cytodiagnosis of cutaneous metastases from internal malignancies

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Abstract

Introduction: Cutaneous metastases from carcinoma are relatively uncommon, being usually late events in the course of internal malignancies and indicates a dismal outcome for patients. This study highlights the role of fine needle aspiration cytology in diagnosing metastatic skin nodules. **Materials and Methods:** A retrospective review of the available records of 7,200 patients subjected to fine needle aspiration cytology from January 2015 - August 2015 was done and 15 patients diagnosed as metastatic skin nodules were included in the study. **Results:** Out 15 patients diagnosed with cutaneous metastases on cytology, 7 were males and 8 females with age ranging from 42-75 years. Chest wall was the most common site of metastases and most patients presented with solitary nodules. Squamous cell carcinoma and adenocarcinoma were the most common cytomorphological types observed. **Conclusion:** Fine needle aspiration cytology is minimally invasive, safe, rapid and reliable method for the diagnosis of cutaneous metastases.
Keywords: Fine needle aspiration cytology; Cutaneous metastases; internal malignancies.

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INTRODUCTION

Cutaneous metastasis can be defined as the spread of a tumor from the site of its primary origin to the skin[1]. Cutaneous metastases occur in 0.6%-10.4% of all patients with cancer and represent 2% of all skin tumours[2]. They may herald the diagnosis of internal malignancy, and early recognition can lead to accurate and prompt diagnosis and timely treatment. Cutaneous metastasis may be the first sign of clinically silent visceral cancer and may help identify and locate the occult tumor. More commonly, they are usually late events in the course of tumor progression and may also constitute the first manifestation of relapse of a tumor considered to be in complete remission[3]. Some tumors have a predilection to metastasize to specific areas. Recognition of these patterns provides essential information that can guide the search for the underlying tumor.[4] Skin metastasis usually represents terminal stage of malignant disease with limited survival period[5]. Fine needle aspiration cytology (FNAC), as an alternative to biopsies, is an excellent, safe, rapid and relatively simple method for early diagnosis of such cases[6]. Thus it is appropriate to use FNAC as a minimally invasive method for diagnosing such metastatic skin nodules.

MATERIALS AND METHODS

This was a retrospective study conducted in the department of pathology, Vardhaman Mahavir Medical College and Safdarjung Hospital. Records of 7,200 patients who underwent FNAC from January2015-August 2015 were reviewed. Of these 7200 patients, 15 patients were diagnosed as having cutaneous metastatic lesions. The Giemsa and Papanicoloau stained smears of these patients were retrieved from the records and reviewed.

RESULTS

From 7,200 patients subjected to FNAC, 15 cases were diagnosed as cutaneous metastases from known or unknown primary site. The age range was 42 to 75 years, and 8 were females and 7 were males. Firm, painless

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cutaneous nodules were the prominent clinical signs observed in 13 patients with solitary nodules in 13 and multiple nodules in 2 patients. Common sites of metastasis with regards to sex are displayed in Table 1.

Table 1: Fine needle aspiration sites of cutaneous nodules

Sites of metastases	Males	Females	Total
Chest Wall	5	3	8
Scalp	1	2	3
Forehead	-	1	1
Abdominal wall	1	2	3

Nine patients had undergone previous surgery for primary neoplasms in the breast (3 cases), prostate (1 case), larynx (2 Cases), cervix (1 case), colorectal (1 case) and oral cavity (1 case). The metastatic deposits in these cases occurred 1-40 months following removal of the primary neoplasm. Five patients had metastatic deposits occurring simultaneously with the primary tumor in the thyroid (3 cases), lung (1 case) and colorectal (1 case). In one patient with metastatic nodule, the primary was undetected in spite of a thorough clinical examination and laboratory investigations. Primary site and FNAC diagnosis in cases with known primary is depicted in Table 2 whereas FNAC diagnosis of unknown primary along with site of metastasis is shown in Table 3.

Table 2: Primary site and FNAC diagnosis in cases with known primary

Primary tumor	Cytological diagnosis	Sex Males	Sex Females	Site
Breast	Duct carcinoma	-	3	Chest wall
Thyroid	Follicular carcinoma	-	2 1	Scalp Forehead
Oral cavity	Squamous cell carcinoma	1	-	Chest wall
Lung	Squamous cell carcinoma	1	-	Scalp
Larynx	Squamous cell carcinoma	2	-	Chest wall
Prostate	Adenocarcinoma	1	-	Chest wall
Colorectal	Adenocarcinoma	1	1	Abdominal wall
Cervix	Squamous cell carcinoma	-	1	Abdominal wall

Table 3: Cutaneous metastasis in unknown primary

Cytological Diagnosis	Sex Male	Sex Female	Site
Squamous cell carcinoma	1	-	Chest wall

Figure 1: (a): abdominal wall nodules, (b): and (c): Scalp nodules

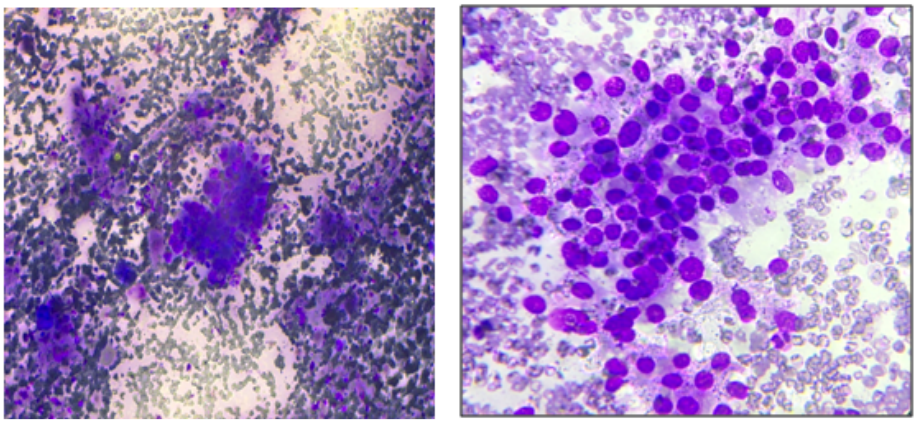

Figure 2: Photomicrographs (a): metastatic squamous cell carcinoma (Giemsa; 100X), (b): metastatsis from follicular carcinoma, thyroid (Giemsa: 400X)

The common histological type was squamous cell carcinoma in larynx, cervix, oral cavity and lung, duct carcinoma in breast, follicular carcinoma in thyroid and adenocarcinoma in colorectal cancers.

DISCUSSION

Cutaneous metastasis is considered a 'grave' sign for majority of the patients with malignancy. Development of such lesions may indicate failure of ongoing therapeutics or recurrence of a cancer assumed to have been previously eradicated or, rarely, it may be the first sign of unsuspected malignant tumour[6]. In our study, 15 out of 7,200 patients who underwent FNAC presented with cutaneous metastases. The age range of patients was between 42 to 75 years, and 8 were females and 7 were males with chest wall being the most common site of cutaneous metastases. Except in two cases where there were multiple nodules, all others presented with solitary nodules. In our study, we found cutaneous metastasis in 7 male and 8 female patient. However most of the studies report a higher incidence of cutaneous metastasis in males[4,7,8,11]. Age ranges in various studies were variable with 27-70 years in one study[8] and 32-89 years in other studies[4,11]. Cutaneous metastasis from a primary visceral malignancy may occur by three different routes: direct invasion, local metastatic disease, or distant metastasis[12] and they usually occur close to the site of primary tumour, that is, chest in lung or breast carcinoma, abdominal wall in Gastrointestinal malignancies, and lower back in renal carcinomas. Chest wall was the most common site of metastases in our study. Chest and abdomen followed by head and neck are the most common sites of metastases reported in the literature as well.[14] In our study, only two patients presented with multiple nodules whereas the rest had solitary nodules (figure 1c). In similar studies, Mendonca et al reported multiple site involvement in only one out of their seventeen cases and Sharma et al reported multiple site involvement in only 9% of their cases[8,10]. Cutaneous metastasis is considered an ominous sign. It can occur as a result of failure of therapy or recurrence of a previously eradicated tumor, as patients often present very late to the clinician at the stage of metastases. Rarely, cutaneous metastasis can present as the first sign of an occult primary, as was seen in one of our case. In a similar study by Sharma et al, incidence of cutaneous metastases was 0.12% with unknown primary[10]. The primary sites of carcinoma in males, with cutaneous metastases, in our cases were larynx, lungs, colorectal, oral cavity and prostate. In females, the primary sites were breast, thyroid, colorectal and cervix. It is very essential to distinguish metastatic skin lesions from primary adnexal tumors and primary squamous cell carcinoma of the skin. Metastases is usually located in the deeper dermis and subcutis and they are free from the overlying skin[4,10]. The incidence of internal malignancies is rapidly rising and so it is likely that skin metastases will be more frequently encountered in future. FNAC of such easily accessible metastatic nodules offers a rapid diagnosis of malignancy and response of cutaneous metastatic lesions to chemotherapy mirrors the response of the primary tumor.

CONCLUSION

Cutaneous metastasis may be the presenting symptom in many cases with underlying occult malignancies and is usually a late manifestation of an internal malignancy. FNAC being a relatively simple, rapid, cost effective and minimally invasive procedure is useful in determining the nature of a palpable skin lesion and precludes more invasive and costly methods of investigation, and is thus an important diagnostic tool in such cases. It may offer a clue to underlying malignancy in unsuspected cases.

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