

# Fine needle aspiration cytology- a boon in the diagnosis of cutaneous and subcutaneous metastatic nodules

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## Abstract

**Objectives:** Cutaneous metastasis although rare is the first presenting sign in occult primary. This study illustrates the role of fine needle aspiration cytology in diagnosing metastatic skin nodules. **Materials and Methods:** A prospective study was conducted from June 2012 to June 2014 in which out of the 84 cases with skin lesions, 17 patients with metastatic skin lesions were evaluated. **Results:** Out of the 17 patients with metastatic skin nodules, 15 cases had known primaries and 2 cases had unknown primaries. There were 8 males and 9 females in the age group of 27-70 years. Most common malignancy to metastasize was breast in females and lung in males. Chest wall followed by scalp was the site of predilection. Adenocarcinoma was the commonest histological type to metastasize. **Conclusion:** Cytology not only helps in early diagnosis and prompt initial evaluation and treatment of cutaneous metastasis with known primaries, but also offers a clue to underlying malignancy in unsuspected cases or recurrence. Fine needle aspiration cytology (FNAC) is a non-invasive, accurate, rapid and reliable method for the diagnosis of cutaneous and subcutaneous metastasis.

**Keywords:** Cutaneous metastasis, FNAC.

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## MATERIALS AND METHODS

This was a prospective study from June 2012-June 2014 where among more than 3000 cytology cases, 84 cases presented with skin lesions and 17 cases (20.2%) out of that were cutaneous and subcutaneous metastatic lesions which were evaluated and included in the study. FNAC was performed using a 22-gauge needle and 5 ml disposable plastic syringe. Aspirated material was used to make air-dried and alcohol fixed smears. The air dried smears were stained with May Grunwald Giemsa and wet smears were stained with Papanicolaou stain.

## RESULTS

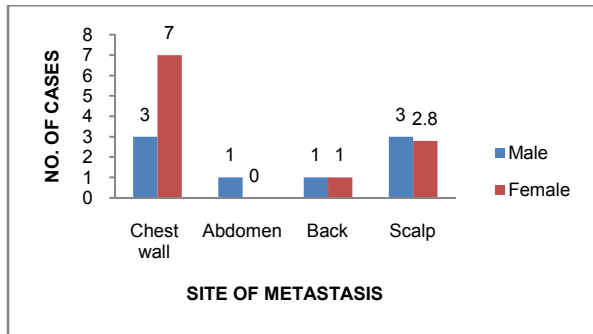
In a two year period 17 cases of cutaneous metastatic skin lesions were diagnosed. Common sites of metastasis with regards to sex are displayed in Table 1 and Figure 1. Primary site and FNAC diagnosis in cases with known primaries are displayed in Table 2 and FNAC diagnosis of unknown primaries is demonstrated in Table 3. The distribution of primary site is displayed in Figure 2. The cytomorphology of metastatic lesions were compatible with the morphology of the primary in all cases.

## INTRODUCTION

Cutaneous and subcutaneous metastasis is a rare occurrence. It has been seen in 0.8-4% of patients with a known primary.<sup>8</sup> Metastatic skin nodules may mimic primary skin tumours or inflammatory process and needs histopathological or cytological confirmation. Fine needle aspiration cytology is a rapid, non-invasive modality of investigation, which in the presence of characteristic cytomorphology, obviates the need for histopathology confirmation or biopsy.<sup>8</sup> This study emphasises the role of FNAC in diagnoses of cutaneous and subcutaneous metastasis.

**Table 1:** Fine needle aspiration sites of cutaneous metastasis

Site	Males	Females	Total
Chest wall	3	7	10
Abdomen	1	0	1
Back	1	1	2
Scalp	3	1	4
<b>Total</b>	<b>8</b>	<b>9</b>	<b>17</b>



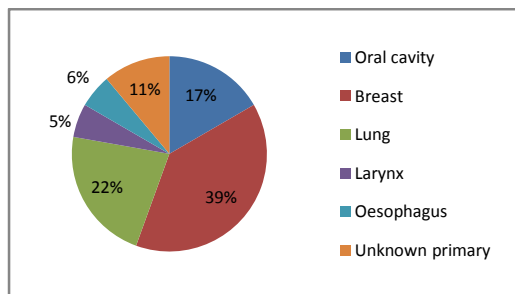
**Figure 1:** A bar graph displaying the site and gender wise distribution of metastatic cases

**Table 2:** Metastasis to skin in cases with known primary

Primary tumour	Cytology diagnosis	SEX		Site of metastases	No. of cases
		M	F		
Oral cavity	SCC	2	0	Chest	1
				scalp	1
Breast	IDC	0	7	Chest	6
				Back	1
Larynx	SCC	1	0	Chest	
Oesophagus	SCC	1	0	Back	
	Adenocarcinoma-			Abdomen	1
Lung	2	4	0	Scalp	2
	Non-small cell-2			chest	1

**Table 3:** Cutaneous metastases in cases with unknown primary

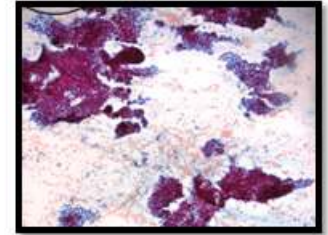
No. of cases	Cytology diagnosis	Sex	Site of metastasis
1	Adenocarcinoma	F	Scalp
1	Adenocarcinoma	F	Chest wall



**Figure 2:** A Pie diagram displaying the primary site



**Figure 3:** Clinical photograph of metastatic abdominal nodule



**Figure 4:** Metastatic adenocarcinoma(PAP; 100X)

## DISCUSSION

Cutaneous metastasis is a rare occurrence and usually a sign of terminal stage of malignant disease. In this study we came across 17 cases of cutaneous and subcutaneous metastatic lesions of which two had unknown primaries. Only one case presented with multiple lesions whereas the rest were solitary nodules. In a similar study Sharma *et al* reported multiple site involvement in 9% cases.<sup>5</sup> Out of the 17 cases in our study, 8 were males and 9 females. Majority of the cases were in the range of 27-70 years and commonly involved the chest wall. In a study by Sharma *et al* out of the ninety-five patients, 49 were males and 46 were females within the age range of 4-96 years.<sup>5</sup> Karki *et al* also showed a male preponderance.<sup>1</sup> Chest wall was the most common site of metastasis according to many studies.<sup>1,7,8</sup> Lung and breast were the most common primaries in males and females respectively in our study. Karki *et al*, Chaudhury *et al*, Srinivasan *et al*, Alcares *et al* have all concluded that breast followed by ovary is the commonest primary for females and lung followed by GIT is the commonest primary in males.<sup>1,4,6,7</sup> Literature has stated that adenocarcinoma was the commonest malignancy to metastasise as was also the case in our study.<sup>1,4</sup> Metastatic lesions should be distinguished from adnexal tumours and other primary malignancies of skin. Metastasis is usually located in the deeper dermis and subcutis and they are free from overlying skin.<sup>1,11</sup> Immunocytochemistry would have been helpful in the diagnosis of cases with unknown primaries as described in studies by Karki *et al*. and Kundu R *et al*. In some studies, cases of cutaneous metastasis failed to find primary site even after autopsies.<sup>1</sup> Cutaneous metastasis although rare is the first presenting sign in occult primary. Cytology helps in early diagnosis and prompt initial evaluation and treatment.<sup>8,9,10,12</sup>

## CONCLUSION

FNAC is a rapid, safe, cost effective modality of determining the nature of a palpable skin lesion and precludes more invasive and costly methods of investigation. Our study also emphasised on the fact that FNAC was preferred over biopsy for quick diagnosis,

especially in those patients who are suffering debilitating diseases.

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