

Cyodiagnosis of Malignant Cutaneous Nodular Lesions: A Study of 32 Cases.

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ABSTRACT

Background: Cutaneous cytology is the study of smears obtained from skin lesions. Cytology has been a useful tool for clinicians due to simplified, non-invasive procedure and high sensitivity and specificity for diagnosis of skin tumors. This investigation was conducted to study usefulness of cutaneous cytology in diagnosis of malignant nodular lesions. **Aims & Objective :** This study aims to evaluate cytopathology as a quick non-invasive method for early diagnosis of malignant nodular skin lesions and to correlate the cytological and histopathological findings of various malignant nodular skin lesions. **Methods:** Thirty two patients with malignant nodular skin lesions were included in the study. Fine needle aspiration cytology (FNAC) was done to obtain material for cytological examination. Excisional biopsy, incisional biopsy and punch biopsy were done to obtain tissue for histopathological examination. The smears were stained with MGG and sections with H&E. **Results:** Of the 32 patients, the most common malignant lesion observed was squamous cell carcinoma which comprised of 09 cases. Concordant results between cytology and histopathology was seen 28/32 cases (87.5%). **Conclusion:** Cytology, performed skillfully and with perfection, leads to an early diagnosis in majority of the malignant nodular lesions, as the observed cytomorphological features of various lesions were fairly distinctive making cytology a fairly sensitive 'patient compliant' technique for rapid diagnosis of skin lesions.

Keywords: Malignant Nodular Skin Lesions, FNAC.

INTRODUCTION

Skin is the largest organ of the body and is the complex barrier of 1.7 m² separating the potentially harmful environment from the body's vulnerable interior.

A cutaneous nodule is a circumscribed relief of the skin disorders, which persist for weeks and is more than 5mm in greatest dimension. Nodules can develop as a result of benign or malignant proliferation of keratinocytes, melanocytes, dermal structures, metabolic deposits, metastatic cutaneous neoplasms, granulomatous lesions of bacteria, viral infections etc.

Fine needle aspiration cytology has been documented to be useful in the diagnosis of a number of skin lesions like nodular lesions and for preoperative diagnosis of tumor like lesions of the skin. It is helpful where quick early diagnosis is required and in lesions difficult to assess.

Cytology of suspected cutaneous malignant lesion is a rapid and reliable diagnostic method which helps

the clinician to decide an appropriate planning and treatment. The technique can be performed as an out patient procedure and smear preparation can be done in the laboratory, even at a peripheral hospital (Tamiolaus 2007).^[1]

The objective of our study was to evaluate cytology as a quick non-invasive method for diagnosing dermatological lesions especially malignant nodular lesions. The confirmation of malignancy as well as typing of neoplasm can accurately be accomplished by FNAC.

MATERIALS AND METHODS

The study was carried out in Muzaffarnagar Medical College & Hospital, Muzaffarnagar. Cases for the study were selected from the Skin/Surgical OPD and also admitted in the ward. The study spanned 3 years and the study population consisted of 435 patients who presented with cutaneous nodules. Patient were subjected to thorough clinical & local examination of the nodule. All the cases were subjected to FNAC procedures after collecting patient's relevant clinical data & informed consent with the help of fine needles usually of 22-23 gauge and both short and long 10 or 20 ml syringes. Of 435 patients, 32 patients were diagnosed with malignant cutaneous nodule. Cytological smears were stained

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with MGG. Sections were routinely stained with hematoxylin and eosin (H&E). Concordance result between cytological and histopathological diagnosis was analysed.

RESULTS

Among the 435 patients who underwent FNAC for any cutaneous nodules, 32 patients were diagnosed to be having malignant nodular lesions. As seen in the present study, malignant nodular lesions were seen most commonly in the age group of 51-70 years with sex predilection of M:F – 2.5 : 1. Most of the lesions were noted in the head & neck region. In most of the cases the nodular lesions presented as painless firm nodules 27 cases and in 05 cases as ulcerated nodular growth with indurated margins.

Of the 32 malignant lesions there were 9 cases of squamous cell carcinoma, 7 cases each of basal cell carcinoma and cutaneous metastatic carcinoma, 3 cases of Non hodgkin's lymphoma 2 cases each of dermatofibrosarcoma protuberance, malignant melanoma and sebaceous carcinoma

Lesions of SCC presented clinically as ulcerated nodular growth with indurated margins. Cytological examination revealed malignant squamous cells with pleomorphic, hyperchromatic nucleus with clumped chromatin with moderate to abundant cytoplasm along with inflammatory cells in the background. Out of 9 cases of Squamous cell carcinoma in which FNAC was done, histopathology was available in 7 cases. Of the 7 cases in one case histopathological diagnosis of proliferating trichilemmal cyst was made. Thus histopathology was concordant in 6 cases.

Of the 07 cases of BCC which presented clinically with nodular growth either on eyelid, forehead or cheek, cytology revealed cohesive sheets of round to oval cells having basophilic cytoplasm, uniform dark oval nuclei and evenly distributed chromatin. Histopathology was concordant in 05 cases and 1 case histopathological diagnosis of pilomatricoma was made. So concordant result was seen in 5/7 cases and in 1 case histopathology was not available.

07 cases of cutaneous metastatic carcinoma were reported on cytology. The primary tumors were detected in lung, breast, maxilla, skull and colon. Histopathology was available and concordant in all the 7 cases.

3 cases of NHL was reported in patients who presented with multiple painless firm nodules over face and upper extremity. Cytology showed monotonous population of cells with high N:C ratio, anisonucleosis and prominent nucleoli. Histopathology was concordant in all the 3 cases.

2 cases of sebaceous carcinoma were reported on cytology in 60 years old male patient and 65 years old female patient both presented with firm painful nodular ulcerated mass over upper right eyelid and lower right eyelid respectively. Cytology in both cases revealed clusters of epithelial cells with anisopoikilocytosis, enlarged nucleus and eosinophilic vacuolated cytoplasm and prominent nucleolus. Histological examination was available and concordant in only one case.

2 cases of DFSP were reported & both were males in the age group of 40-49 years. The cytological smears showed loosely cohesive spindle cells and many dispersed single cells which showed hyperchromatic nuclei and poorly defined cytoplasmic borders. Histopathology was concordant in both the cases.

2 cases of malignant melanoma were seen, both in males and the lesions were seen on the limbs. Fine needle aspiration was performed and showed good cellularity. The cells were highly pleomorphic, round to oval with increased nuclear cytoplasmic ratio, hyperchromatic eccentric nucleus, coarsely granular chromatic pattern and 1-2 punched out prominent nucleoli and moderate amount of cytoplasm. Melanin pigment was seen intracellularly as well as extracellularly. Histopathology was concordant in both the cases.

Of all the 32 cases diagnosed cytologically as malignant nodular lesions, histopathology was available in 28 cases. In all the 28 cases cytological diagnosis correlated well with histopathological diagnosis.

Table 1: Cytohistopathological Correlation Of Malignant Nodular Skin Lesions

S.No.	Pathological	Total cases	FNAC done	Correct diagnosis	Wrong diagnosis	Diagnostic accuracy	Histopathological available
1.	Squamous cell carcinoma	9	9	6	1	85%	07
2.	Basal cell carcinoma	7	7	5	1	85%	6
3.	Cutaneous metastatic carcinoma	7	7	7	-	100%	07
4.	Non Hodgkin's lymphoma	3	3	3	-	100%	03
5.	Sebaceous carcinoma	2	2	1	-	50%	01
6.	Malignant melanoma	2	2	2	-	100%	02
7.	Dermato fibro sarcoma protuberance	2	2	2	-	100%	02
	Total	32	32	26	2		28

DISCUSSION

The present study was done on diagnosis of malignant nodular skin lesions by cytology and further correlation with histopathology. Of the 32

malignant nodular lesions studied cytologically, histopathology was available in 28 cases. 26 cases were concordant on histopathology. Observations were similar to those observed by Layfield and Glasgow.^[2] SCC was the most common malignant

skin lesion seen in our study comprising 9 cases of a total of 32 malignant lesions studied. Mean age at presentation was 58.50 years with male predominance. Tamiolaki,^[3] reported patients with SCC in age group 50-70 years and male predominance. Cytolohistopathological correlation was confirmed in 6 cases and one case proved to be proliferating trichilemmal cyst on histopathological examination.

Along with squamous cell carcinoma, basal cell carcinoma forms the majority of cases. In our study 7 cases of BCC were noted and all the lesions were seen on face, similar to the findings by Allen and Malberger et al.^[4,5] Cytological findings were similar to observations of Malberger et al, Arya et al, Dey et al as well as Naraghi et al.^[6-8] Correlation between cytology and histopathology was possible in 06 cases and one case on histopathology turned out to be pilomatricoma. Massom et al 2012 concluded that the sensitivity and specificity of FNAC for BCC was 94.3% and 100 % respectively.^[9]

In our study 2 cases of dermatofibrosarcoma protuberance were encountered in age group of 40-49 years, with male preponderance while in a study done by Ding et al,^[10] it was noticed one decade earlier (30-39 years). Both the cases were reported in the lower extremities while in a study done by Lemm D et al,^[11] it was reported to involve mainly the trunk (42-72%), followed by the extremities (16-30%) and less commonly in the head and neck. The fine needle aspiration findings of dermatofibrosarcoma protuberance have been reported by Domanski & Gustafson in the study of primary, recurrent and metastatic DFSP.^[12] Histological correlation was available and concordant in both the cases.

2 cases of Sebaceous carcinoma were diagnosed in a 60 years old male and 65 years old female patient. Mean age of patients as reported by Barnhill (1998) was 62 years with no sex predilection.^[13] Shields et al reported that upper eyelid is affected two to three times more often than the lower eyelid due to high number of meibomian glands.^[14] In our study one patient presented with nodular lesion over upper eye lid and other at lower eyelid. The cytological findings observed in the smear were similar to those described by Malhotra et al.^[15] Diagnosis on cytology was confirmed by histopathology in 1 case. Histopathological findings were similar to those observed by Basseto et al and Gill et al.^[16,17]

3 cases of Nonhodgkins lymphomas were diagnosed cytologically with M:F ratio of 1:2 and mean age 56 years. Esche et al reported that primary cutaneous lymphoma without extracutaneous involvement at presentation accounts for nearly 5% of all NHLs.^[18] Both cases were confirmed histologically.

7 cases of cutaneous metastases were reported with male predominance. Reyes et al reported metastasis solely in male patients.^[19] Layfield and Glasgow have stated that complete information regarding

history and physical findings is necessary for an accurate diagnosis and identification of primary and metastatic tumors of skin. The primary lesion in our study lied in lung, breast, maxilla, skull and colon. Brownstein said that breast, ovary & colon constituted the common source of cutaneous metastasis in women and lung, colon & oral cavity in men. In our study too similar results were seen.^[20] However Brownstein found melanoma as the source of cutaneous metastasis in 15% patients; surprisingly, we did not find any case of melanoma in our study. FNAC was 100% diagnostic in confirming the presence of cutaneous metastasis of primary tumors. 2 cases of malignant melanoma were included in the study. The mean age was 48 years that correlated with the study by Hadju and Savino who reported maximum number of cases in age group of 41-60 years with male predominance.^[21] However, this was in contradiction with the study of Perry et al which reported higher incidence of tumor in young adults.^[22] Cytological findings were correlated with the observations of Friedman et al.^[23] Correlation between cytology and histology was obtained in both the cases (100%)

The study was conducted to diagnose various malignant nodular skin lesions by cytology and correlate with histopathological findings. Cytohistopathological correlation was available in 28 cases. In 26 cases an accurate diagnosis was made by cytology whereas in 2 cases discordant results were obtained. A high degree of correlation was achieved among cytological and histological findings. The sensitivity of cytology in diagnosing malignant nodular lesions was 92.8%

CONCLUSION

Cytology thus has clear advantage in diagnosing malignant nodular lesions and although cytology cannot replace histopathology as a diagnostic procedure of choice in skin lesions, its value as an adjunctive procedure is immense. Therefore, this study has served to stress the point that cytology is an excellent procedure.

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