

Role of Fine-Needle Aspiration Cytology in Evaluation of Malignant Skin Lesions

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ABSTRACT

Objectives: A prospective study was carried out to observe the pattern of malignant skin lesions and on the role of FNAC in diagnosing malignant skin lesions as well as to correlate skin lesions diagnosed as cytologically malignant with their histological findings.

Material and Methods: FNAC from patients with the suspected malignant skin lesions coming to the department of pathology is done. Their MGG stained sections are studied and histo- pathological correlation is done.

Results: Highest frequency of malignant skin lesion was found in the age group of 31-40 years. In our study most common malignant lesion was basal cell carcinoma 8 cases (42.11%). Next in order was Squamous cell carcinoma and Malignant Melanoma. 15 cases out of total 19 (78.95%) cases were accurately diagnosed by FNAC in our study (Histopathology Concordant).

Conclusions: FNAC was the investigation under study. It showed high sensitivity in the diagnosis of malignant skin tumors. We, therefore, recommend this technique for the initial evaluation of a patient with suspected malignant skin tumors. The technique is cheap, quick, less invasive, and highly accurate for the diagnosis.

KEYWORDS: Basal cell carcinoma, FNAC, Malignant skin lesions, Malignant melanoma.

INTRODUCTION

Early diagnosis and timely management is prime concern of dermatologists in cases of neoplastic conditions affecting skin as complete excision can cure all patients. As well as these conditions are quite common in occurrence.

Patients who develop neoplastic conditions of skin often have recognizable precursor conditions as in cases of squamous cell carcinoma and malignant melanoma. Lesions that are rapidly growing, spreading or pigmented or those that occur on exposed areas of skin are of particular concern regarding their malignant potential. When in doubt regarding malignancy or for confirmation of diagnosis, it is appropriate to perform an excisional biopsy of small lesions or punch biopsy of larger lesions. Removal of premalignant lesions will reduce the occurrence of malignant disease.¹

AI Rubin et al. studied cases of Basal Cell Carcinoma (BCC) and stated that suspicious lesions occurring in high risk areas, such as the central portion of the face,

should undergo prompt biopsy to obtain a timely diagnosis. Biopsy or surgical excision of the lesion provides the specimen for histopathological examination, which is the mainstay for diagnosis. Fine-needle aspiration cytology on the other hand is an even simpler procedure, which can provide accurate diagnosis to confirm or exclude the malignancy.

FNAC was first used as a diagnostic tool in 1904 by Grieg and Gray.² They aspirated trypanosomes from the lymph nodes of patients with sleeping sickness. Over the subsequent 30 years, its role was developed, in particular by Guthrie, who attempted to correlate the results of aspiration with a range of diseases being investigated and by Martin and Ellis who, from their base at Memorial Sloan-Kettering Cancer Center in New York, developed its use in the diagnosis of malignancy.³⁻⁴

Basal cell carcinomas are the most common type of skin cancer, making up more than 80% of the nonmelanoma cancers.⁵ As well as BCC is the most common malignant

tumor of the skin in humans. Even though the neoplasm is malignant, it rarely metastasizes, presenting mainly with a healing and recurring lesion, which may bleed as well.⁶ The tumor mainly presents in individuals older than 40 years, with the incidence being more in males than females. One of the factors is prolonged “heavy” exposure to sun during youth predisposing to BCC later in life. The diagnosis of BCC is made clinically, which can then be confirmed microscopically.⁷

FNAC showed both a high sensitivity and specificity in the diagnosis of malignant skin tumors, specifically basal cell carcinoma (BCC) and squamous cell carcinoma (SCC).⁸ Therefore it is recommend for the initial evaluation of a patient with suspected malignancies of skin or in cases of recurrence. The technique is cheap, quick, less invasive, and highly accurate for the diagnosis of malignant skin lesions.

FNAC is also a useful diagnostic procedure for clinically suspicious lesions in patients with a previous diagnosis of melanoma. The morphologic features of malignant cells in smears, can be helpful in making the preoperative cytologic diagnosis of malignant melanoma of the skin.⁹ It is a common procedure that can be done in the clinic using simple palpation for more superficial lesions or with the assistance of image guidance for more deeply seated lesions.¹⁰ There are, however, very

few reports on the utility of this technique for diagnosing skin malignancies. Here, we present our prospective study to observe the pattern of malignant skin lesions and on the role of FNAC in diagnosing malignant skin lesions as well as to correlate skin lesions diagnosed as cytologically malignant with their histological findings.

MATERIALS AND METHODS

Total 19 patients of suspected malignant diseases of skin referred from department of dermatology for FNAC to department of pathology, Santosh Medical College and hospital, Ghaziabad, UP (India) were recruited for this prospective study. Institutional Ethics Committee (IEC) approval was taken prior to study.

FNAC is done with 23 g needle and scraping whenever necessary. Two smears immediately before drying were immersed in jar containing a mixture of 50% ether and 50% absolute alcohol in equal quantity and kept for at least 30 min and then stained with Papanicolaou technique. The other 2 slides were air dried and fixed in methanol and were stained with MGG. The cytomorphological features are studied. Punch biopsies were taken to confirm the clinical and cytologic impression. Histopathological sections were stained with hematoxylin and eosin stain and correlation is done with histopathology for the malignant cases.¹¹

Table 1: Distribution of patients according to age

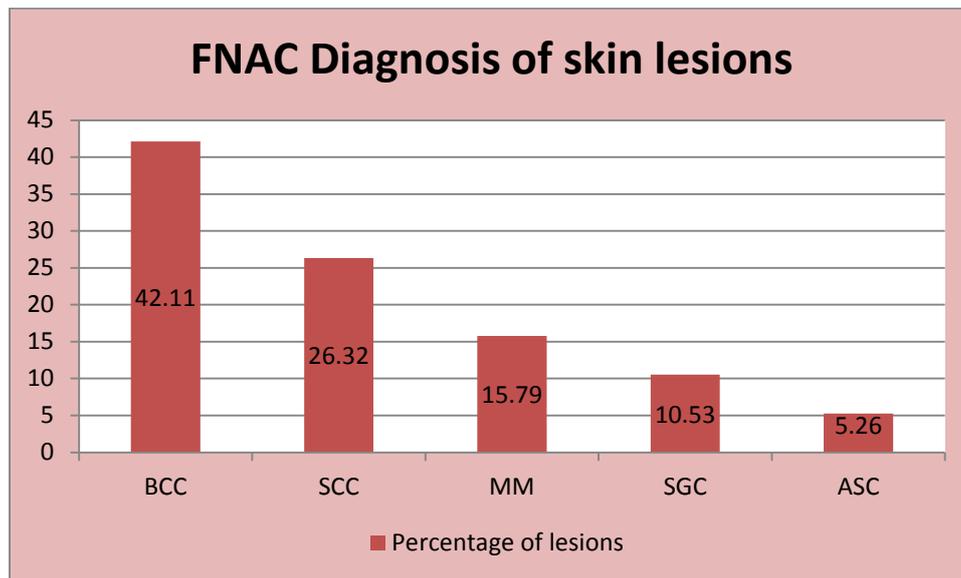
Age Groups	Number Of Patient	Percentage
<10 Years	1	5.26
11-20	2	10.53
21-30	3	15.79
31-40	7	36.84
41-50	3	15.79
51-60	1	5.26
>61 Years	2	10.53
Total	19	100

Table 2: FNAC Diagnosis of skin lesions

FNAC Diagnosis	Number	Percentage
Basal cell carcinoma	8	42.11
Squamous cell carcinoma	5	26.32
Malignant melanoma	3	15.79
Sebaceous gland carcinoma	2	10.53
Adenosquamous carcinoma	1	5.26
Total	19	100

Table 3: Histo-pathological correlation of the malignant lesions

Clinical Diagnosis	No. of Cases	Cytology	Histopathology Concordant	Discordant
Basal cell carcinoma	8	8	6	2
Squamous cell carcinoma	5	5	4	1
Malignant melanoma	3	3	2	1
Sebaceous gland	2	2	2	0
Adenosquamous carcinoma	1	1	1	0
Total	19	19	15	4



RESULTS

The age range of total 19 patients was 21-67years with the mean age of 43.4 years. Highest frequency of malignant skin lesion was found in the age group of 31-40 years. In our study most common malignant lesion was basal cell carcinoma 8 cases (42.11%). Next in order was Squamous cell carcinoma and Malignant Melanoma. 15 cases out of total 19 (78.95%) cases were accurately diagnosed by FNAC in our study (Histopathology Concordant).

DISCUSSION

In our study most common malignant lesion was basal cell carcinoma 8 cases (42.11%). Next in order was Squamous cell carcinoma and Malignant Melanoma. Masoom Kassi et al.⁵ and Partha Kamal Kakati et al.¹¹ also found BCC as most common malignant lesion followed by squamous cell carcinoma.

Basal cell carcinoma presented clinically with single or multiple nodules and ulcerated swelling either on face. Histology revealed increased numbers of small, oval cells with hyperchromatic nuclei. The cell clusters had a very thin rim of cytoplasm with a high nuclear to cytoplasm ratio. Some also showed peripheral palisading.

Malignant melanoma lesions showed mottled appearance due to pigmentation with irregular borders. On cytology poorly cohesive, some plasmacytoid even binucleated cells with prominent nucleoli. Histologically atypical melanocytes were seen with nuclear pleomorphism and hyperchromasia, prominent nucleoli and abundant melanin pigment.

15 cases out of total 19 (78.95%) cases were accurately diagnosed by FNAC in our study (Histopathology Concordant). Fauziya Sabir et al. also determined the sensitivity (88.9%) of FNAC in diagnosing Malignant skin lesions.¹⁰ Partha Kamal Kakati et al.¹¹ also determined sensitivity of 85.7%. Our cytological findings correlated with the observations of Arya et al.⁹,

Partha Kamal Kakati et al.¹¹, Layfield JL¹² as well as and Dey et al.¹³

This rapid diagnosis service of FNAC has the effect of decreasing patient anxiety as well as reducing the time from presentation to diagnosis and, ultimately, to treatment. The main advantage of FNAC is the avoidance of a surgical biopsy and its attendant risks, which include scarring (which, if poorly planned, may interfere with definitive surgical treatment), potential tumor seeding, increased hospital stay and increased costs.¹⁴

FNAC was the investigation under study. It showed high sensitivity in the diagnosis of malignant skin tumors. We, therefore, recommend this technique for the *initial* evaluation of a patient with suspected malignant skin tumors. The technique is cheap, quick, less invasive, and highly accurate for the diagnosis.

However, E. Vega-Memije et al.¹⁵ stated that FNAC does not give much information about tumor patterns or subtypes which can be related to aggressive behavior and can be very important in further therapeutic decisions. This should, thus, be followed by "histopathological confirmation" before any therapeutic maneuver is considered.

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