



Original Article

Demographic Profile of Nodular Skin Lesions and their Cytohistopathological Evaluation

Authors

Hema Pant¹, Ratna Saxena²

^{1,2}Prof., Dept of Pathology, SRMS-IMS, Bareilly, UP

Corresponding Author

Dr Hema Pant

Prof., Dept. of Pathology, SRMS-IMS, Bareilly, UP-243202

Fax-05812582030, Email: hemaufht@yahoo.com

Abstract

Fine needle aspiration cytology is well accepted as a safe, reliable, minimal invasive and cost-effective method and can be applied for initial diagnosis of palpable lesions of skin. Its accuracy when applied by experienced and well trained practitioners matches that of histopathology in providing an equivocal diagnosis; so it can also be used as a very useful alternative to excision biopsy. A total of 57 patients with palpable nodular lesions were included in the study. All patients were randomly selected, irrespective of their age, religion, marital status, occupation or social status. Every patient underwent a FNAC done on OPD basis by a trained pathologist following a thorough clinical check-up. Every patient subjected to FNAC underwent skin biopsy, so subjected to histopathology. The results thus obtained from histopathology were matched with those of FNAC and a correlation was sought based on statistical tests. The overall diagnostic accuracy was 89.4%, the sensitivity was 94.4% and specificity was 100%.

Keywords: FNAC, nodular lesions.

Introduction

A skin nodule is a palpable circumscribed solid lesion more than 1 cm in diameter. It can develop as a result of inflammatory, benign or malignant process. Fine needle aspiration cytology is a relatively non-traumatic procedure for sampling both the superficial and deep-seated masses. Multiple samples can be obtained in the same setting. The technique is relatively painless, produces a speedy result and is cheap. Fine needle aspiration cytology is well established technique for evaluation of epithelial tumors for many years. (Layfield Lj et al.1986) The findings of cytology

can be correlated well with histopathology. The first recorded utilization of this technique is available from St. Bartholomew's hospital in the year 1833. Later Sir James Paget widely used this technique. (Frale WJ, 1983) We undertook the present study to evaluate the possible utility of cytology in diagnosing nodular lesions of skin.

Material and Methods

This study was carried out to evaluate the diagnostic accuracy of fnac in nodular skin lesions. A total of 57 cases of clinically evident nodular lesions were taken for the study. All cases

were subjected to FNAC, followed by biopsy. FNAC was done with 21G-23G needle attached to 10 ml disposable plastic syringe. Smears were fixed in 95% ethanol for 20 minutes and were then stained with Papanicolaou stain. Air-dried smears were stained with May Grunwald's Giemsa stain. The smears were studied for cytological details and diagnosis. The biopsied specimens of the above cases were processed routinely and stained with Hematoxylin and Eosin stain and examined. A final correlation was done between cytological and histological diagnosis.

Results

All the 57 patients underwent a diagnostic FNAC in the pathology department following which all underwent a biopsy. All the biopsied specimens obtained were subjected to histopathology. The FNAC report was correlated with the final histopathology report and statistical tests were used to interpret the results.

The observations and results of our study were tabulated and analyzed as below:

Table 1: geographical distribution of cases

S. No.	Urban/rural	No. of cases	Percentage (%)
1	Urban	27	47.37
2	Rural	30	52.63

Table 2: sex wise distribution of cases

S. No.	sex	No. of cases	Percentage (%)
1	Male	32	56.14
2	Female	25	43.86

Table 3: distribution of various lesions on cytology

S.No.	Type of lesions	No. of cases	Percentage(%)
1	Lipoma	22	38.6
2	Benign mesenchymal lesion	08	14.04
3	haemangioma	04	7.02
4	Sebaceous cyst	05	8.77
5	Benign nerve sheath tumor	05	8.77
6	benign fibrohistiocytic tumor	03	5.26
7	Benign spindle cell lesion	04	7.02
8	Leptotic nodules	03	5.26
9	inconclusive	03	5.26

There were 57 patients, out of which 30 (52.7%) were from rural areas and 27 (47.3%) from urban area. 32 (56.14%) were males and 25 were females (43.86%). Among the lesions, lipoma was the most common on cytology, which accounted 38.6%, followed by benign mesenchymal lesions 14.04%, followed by sebaceous cyst, and benign nerve sheath tumor, each constituted 8.77%. Haemangioma and benign spindle cell tumors accounted 7.02%. There were 3(5.26% each) cases of leptotic nodules and benign fibrohistiocytic tumors. The overall diagnostic accuracy was 89.4%, the sensitivity was 94.4% and specificity was 100%.

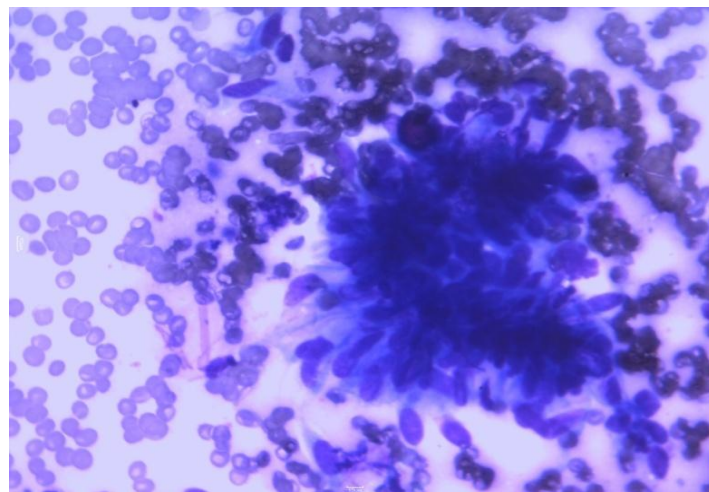


Figure 1: benign spindle cell lesion showing spindle cell fragment

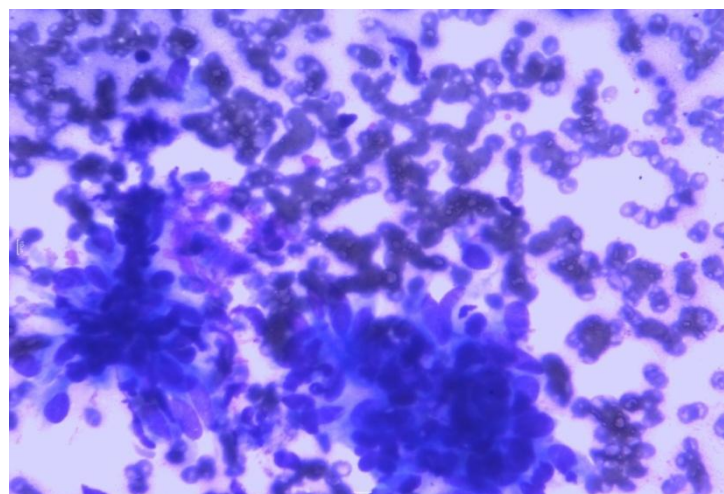


Figure 2: benign mesenchymal tumor showing clusters of oval to spindle cells

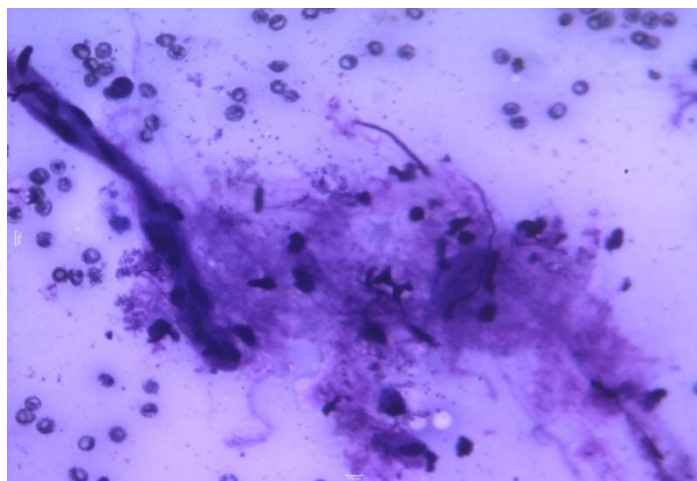


Figure 3: benign nerve sheath tumor showing cells with wavy nuclei on a fibrillary matrix

FNAC diagnosis	No. of cases	Lipoma	Neurofibroma	Schwanoma	Haemangioma	Fibroma	Sebaceous cyst	Leiomyoma	Benign fibrous histiocytoma	Erythema nodosum	ToTal
Lipoma	22	19	1	1		1					22
Benign mesenchymal tumor	08	1	2	1		1		1	2		8
Haemangioma	04				4						4
Sebaceous cyst	05						5				5
Benign nerve sheath tumor	05		3	2							5
Benign fibrous histiocytic lesion	03					1			2		3
Benign spindle cell lesion	04		2			1			1		4
Leprotic nodule	03									3	3
Inconclusive	03	1	1	1							3

Discussion

FNAC has an established role in the diagnosis of various neoplastic and non-neoplastic lesions. Its accuracy when applied by experienced and well trained practitioners matches that of histopathology in providing an equivocal diagnosis, so it may also be used as a very useful alternative to excision biopsy in the diagnostic workup. The two fundamental requirements on which the success of FNAC depends are representativeness of the sample and high quality of preparations.

Different factors like poor localization of the lesions, poor aspiration techniques, tangential aspiration whereby the needle misses the lesion and only the inflammatory reaction are sampled, desmoplastic tissue reaction which makes cells difficult to aspirate are the different factors leading to difficulty in adequate sampling of the cells. Similarly, adequacy and representativeness of the smear material should be decided by the cytopathologist himself in order to give a definite opinion. Thus it is emphasized that FNAC should be carried out in diagnostic evaluation of nodular lesions with proper degree of attention to

cytomorphological features, supplemented with clinical findings and other diagnostic data.

In this study, lipomas were the most common and accounted for 36.84% of all cases on histopathology. Lipomas are almost exclusively found in adults, have a strong predilection for men (Brasfield and Das Gupta, 1969). They can be solitary or multiple and most frequently involve the subcutaneous adipose tissue. They are practically never seen in the face or scalp regions. Benign fibrous histiocytoma accounted about 8.7% of all cases. Fibrous histiocytoma is a frequent, benign, slowly growing cutaneous lesion of adults with predilection for extremities (Gonzalez and Duarte, 1982; Fletcher, 1990). Less frequently it presents as a subcutaneous lesion without skin involvement. It is extremely rare in deep soft tissue, parenchymal organs, or bone (Meister et al, 1978).

Haemangioma accounted 7.02% of all the cases. Benign vascular lesions closely resemble normal vessels, and their distinction from vascular malformations and hamartomas is not always clear (Rao and Weiss, 1992). Hemangioma, one of the most common benign soft tissue tumors, is composed of an architecturally abnormal network of vessels (Allen and Enzinger, 1972; Nichols et al, 1992).

Schwannomas accounted about 8.7% of all the cases. Schwannomas or neurilemmomas are benign peripheral nerve sheath tumors derived from Schwann cells. They involve males and females with equal frequency and are most common between the ages of 20 and 30 years.

Neurofibromas constituted for 15.79%. Neurofibromas are common benign tumors composed of specific neural fibroblastic cells with elongated wavy nuclei lying in a loose collagenous stroma. Most neurofibromas are solitary subcutaneous lesions that are not associated with neurofibromatosis. Plexiform neurofibromas represent an expansion of nerves by proliferating neurofibroblastic cells grossly mimicking a bag of worms (Iwashita and Enjoji, 1986).

Epidermal or sebaceous cysts accounted for 8.77%. Epidermal or sebaceous cysts are slowly growing, elevated, round, firm, intradermal or subcutaneous tumors that cease growing after having reached 1 to 5 cm in diameter. They occur most commonly on the face, scalp, neck and trunk. Although most epidermal cysts arise in hair-bearing areas, occasionally they occur on the palms or soles (Leonforte JF et. Al, Fisher BK et.al) or form as the result of trauma. (Onuigho WIB et.al)

Erythema nodosum leprosum accounted for 5.26% of all cases. Erythema nodosum leprosum occurs most commonly in LL leprosy and less frequently in borderline lepromatous leprosy. On the skin one observes red plaques and nodules together with areas of erythema and occasionally also purpura and vesicles. (Elder et.al. 2005)

Conclusion

FNAC can be effective and reliable diagnostic tool in the evaluation of soft tissue tumors. It is highly sensitive to detect benign soft tissue tumors and highly specific for malignant soft tissue tumors. Since the technique is relatively painless, easy to perform and cheap, there are clear advantages to the patients, doctors and to the hospital. Its accuracy in many situations when applied by experienced and well trained practitioners, matches that of histopathology in providing an equivocal diagnosis.

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