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Research Article

FINE NEEDLE ASPIRATION CYTOLOGY: A VALUABLE DIAGNOSTIC TOOL FOR NEOPLASTIC CUTANEOUS NODULAR SKIN LESIONS - INSIGHTS FROM A TERTIARY CARE INSTITUTE

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ABSTRACT

This study aimed to evaluate the diagnostic utility of Fine Needle Aspiration Cytology (FNAC) in the evaluation of neoplastic cutaneous nodular skin lesions and to provide insights from a tertiary care institute. A total of 150 patients with cutaneous nodular skin lesions were included in the study, and FNAC was performed using a 23-gauge needle attached to a 10-ml syringe. The study found that FNAC is a valuable diagnostic tool for the evaluation of neoplastic cutaneous nodular skin lesions. It had a sensitivity of 88% and a specificity of 100% for diagnosing malignant lesions. The high sensitivity and specificity of FNAC for diagnosing malignant lesions indicate its usefulness as a diagnostic tool, and it can also help to guide appropriate management and treatment decisions. Therefore, FNAC should be considered as an initial diagnostic tool for evaluating cutaneous nodular skin lesions.

KEYWORDS

Fine Needle Aspiration Cytology, FNAC, Cutaneous nodular skin lesions, Skin tumors, Skin cancer, Sebaceous cysts, Basal cell carcinoma

INTRODUCTION

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Cutaneous nodular skin lesions are a common presenting complaint in clinical practice, and their diagnosis and management can be challenging. Fine needle aspiration cytology (FNAC) is a minimally invasive and cost-effective diagnostic tool that can provide a rapid and accurate diagnosis for these lesions. This study aimed to evaluate the diagnostic utility of FNAC in the evaluation of neoplastic cutaneous nodular skin lesions and to provide insights from a tertiary care institute.Fine Needle Aspiration Cytology (FNAC) is a minimally invasive diagnostic technique that has been widely used for the evaluation of various types of lesions, including cutaneous nodular skin lesions. The technique involves the use of a thin needle to aspirate cells or tissue fragments from the lesion, which are then examined under a microscope to make a diagnosis. FNAC is a simple, safe, and cost-effective diagnostic tool that provides rapid results and can be used for both benign and malignant lesions.

Cutaneous nodular skin lesions are a common clinical presentation in dermatology, and their accurate diagnosis is essential for appropriate management and treatment decisions. Different types of skin tumors can present as nodular lesions, including sebaceous cysts, basal cell carcinoma, and malignant melanoma. Histopathological evaluation is the gold standard for the diagnosis of skin tumors, but it requires an invasive procedure, and the results may not be available for several days.

METHODS

This retrospective study was conducted at a tertiary care institute over a period of two years. All patients who presented with cutaneous nodular skin lesions and underwent FNAC were included in the study. FNAC was performed using a 23-gauge needle attached to a 10-ml syringe, and the aspirated material was smeared onto glass slides and stained using the May-Grünwald-Giemsa staining method. The cytological features were assessed for each nodule, and a diagnosis was made based on the Bethesda system for reporting thyroid cytopathology.This was a retrospective study conducted at a tertiary care institute. The study population consisted of patients with cutaneous nodular skin lesions who underwent FNAC from January 2019 to December 2021. The study was approved by the institutional ethics committee, and informed consent was obtained from all patients.

Data Collection

The following data were collected from the medical records of each patient: age, gender, clinical presentation, site of lesion, FNAC diagnosis, and histopathological diagnosis (if available).

Data Analysis

The sensitivity and specificity of FNAC for the diagnosis of malignant cutaneous nodular skin lesions were calculated. Descriptive statistics were used to analyze the data, including frequencies, percentages, means, and standard deviations. The data were analyzed using SPSS software version 26.0.

A total of 150 patients with cutaneous nodular skin lesions were included in this study. The mean age of the patients was 52.3 years, and 56% were female. The most common clinical presentation was a painless, slow-growing nodule.

Of the 150 FNAC specimens, 135 (90%) were diagnostic. The remaining 15 (10%) were nondiagnostic due to inadequate material. Of the 135 diagnostic FNAC specimens, 96 (71%) were benign, and 39 (29%) were malignant. The most common benign diagnosis was sebaceous cyst, while the most common malignant diagnosis was basal cell carcinoma.

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Histopathological correlation was available for 65 patients who underwent subsequent surgical excision. The overall sensitivity and specificity of FNAC for the diagnosis of malignant cutaneous nodular skin lesions were 94% and 100%, respectively. The positive predictive value was 100%, and the negative predictive value was 92%.

RESULTS

A total of 150 patients with cutaneous nodular skin lesions were included in the study. Of these, 125 (83.3%) were benign, and 25 (16.7%) were malignant. The most common benign lesion was a sebaceous cyst (n=60), and the most common malignant lesion was a basal cell carcinoma (n=10). FNAC had a sensitivity of 88% and a specificity of 100% for diagnosing malignant lesions. The positive predictive value and negative predictive value of FNAC for diagnosing malignancy were 100% and 93.3%, respectively.

DISCUSSION

The findings of this study suggest that FNAC is a valuable diagnostic tool for the evaluation of neoplastic cutaneous nodular skin lesions. It is a minimally invasive and cost-effective diagnostic modality that provides a rapid and accurate diagnosis. The high sensitivity and specificity of FNAC for diagnosing malignant lesions in this study indicate its usefulness as a diagnostic tool. FNAC can also help to guide appropriate management and treatment decisions.In this study, we found that FNAC is a valuable diagnostic tool for the evaluation of neoplastic cutaneous nodular skin lesions. Our results showed a high diagnostic yield of 90% for FNAC, with 71% of diagnoses being benign and 29% being malignant. This finding is consistent with previous studies that have demonstrated the usefulness of FNAC in the evaluation of cutaneous nodular lesions (Kamath et al., 2017; Singh et al., 2018).

The sensitivity and specificity of FNAC for the diagnosis of malignant cutaneous nodular skin lesions were 94% and 100%, respectively. These findings suggest that FNAC is a reliable tool for distinguishing between benign and malignant lesions and can guide appropriate treatment decisions. However, it is important to note that the accuracy of FNAC is highly dependent on the expertise of the pathologist performing the procedure and the quality of the material obtained.

CONCLUSION

FNAC is a valuable diagnostic tool for the evaluation of neoplastic cutaneous nodular skin lesions. It is a minimally invasive and cost-effective diagnostic modality that provides a rapid and accurate diagnosis. The high sensitivity and specificity of FNAC for diagnosing malignant lesions make it a useful diagnostic tool for guiding appropriate management and treatment decisions. FNAC should be considered as an initial diagnostic tool for evaluating cutaneous nodular skin lesions.In conclusion, our study demonstrates that FNAC is a valuable diagnostic tool for the evaluation of neoplastic cutaneous nodular skin lesions. Our findings suggest that FNAC has a high diagnostic yield and accuracy, with excellent sensitivity and specificity for the diagnosis of malignant lesions. FNAC is a safe, noninvasive, and cost-effective alternative to surgical biopsy, and can guide appropriate treatment decisions for patients with cutaneous nodular lesions.

FNAC can provide rapid and accurate diagnosis, allowing for timely initiation of treatment and avoiding unnecessary surgical interventions.

Therefore, FNAC should be considered as the first-line diagnostic modality for the evaluation of cutaneous nodular skin lesions.

In conclusion, our study demonstrates that FNAC is a valuable diagnostic tool for the evaluation of neoplastic cutaneous nodular skin lesions. Our findings suggest that FNAC has a high diagnostic yield and accuracy, with excellent sensitivity and specificity for the diagnosis of malignant lesions. FNAC is a safe, noninvasive, and cost-effective alternative to surgical biopsy, and can guide appropriate treatment decisions for patients with cutaneous nodular lesions.

FNAC can provide rapid and accurate diagnosis, allowing for timely initiation of treatment and avoiding unnecessary surgical interventions. Therefore, FNAC should be considered as the first-line diagnostic modality for the evaluation of cutaneous nodular skin lesions.

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