

A Comparative Study of FNAC and Histopathology of Neck Swellings

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Abstract

Background: To understand the nature of the lesion and the precision of the diagnostic tools in making a conclusive diagnosis, the current study attempted to identify the prevalent pathologies presenting as neck swellings in our area and their clinical and histological correlation.

Materials and Methods: This study was conducted from August 2021 to July 2022 at the J.L.N.M.C.H. Bhagalpur Department of E.N.T. and Department of Pathology. As a result, of the 50 cases examined, histology identified 81.9% of them as benign and 18.1% as malignant, while cytological analysis identified 89.4% of them as benign and 6.9% as malignant, leaving 3.8% of the cases with unclear results. 6.9% of cases had signs of cancer during surgery, while 93% of cases were benign. The most frequent benign neck swelling (70.2%) was thyroid.

Conclusion: FNAC is the safe and simple modality in the investigation of neck swelling with high accuracy and specificity

Keywords: Neck Swelling, FNAC, Cytological, Histological Study.

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Introduction

A neck swell is an accumulation of fluid in the neck tissues or inflammation in the neck brought on by aberrant tissue growth. Neck lumps come in a variety of shapes and sizes, and their causes can be anything from non-life-threatening to extremely serious. When the swelling is not thyroid-related, it is difficult to determine a precise diagnosis and course of treatment. According to size and histological type, neck swelling may, in addition to cosmetic deformities, result in a variety of pressure symptoms affecting the trachea, oesophagus, and major blood arteries. A biopsy may occasionally be necessary, particularly in cases of adenoid, to rule for cancer. Lymphadenopathies, lymphoma, thyroid

and salivary gland swellings, as well as metastatic carcinoma and lymphoma, are the common diseases that cause neck swellings [1].

The less frequent causes of neck swellings include carotid body tumours, bronchial cysts, hypoglossal cysts, cystic aroma, pharyngeal pouches, and lumps originating from cutaneous appendages. There are numerous diagnostic procedures available to determine neck edoema, including ultrasonography, thyroid nuclear scan, fine needle aspiration cytology (FNAC), and many others. Final diagnosis necessitates the morphological evaluation of lesions, for which FNAC and histopathological examination (HPE) tests are required

procedures [2,3].

Currently, the thyroid, lymph nodes, and breast swellings are the investigations of choice using the FNAC technique, which is used all around the world. To compare fine needle aspiration cytology and histopathology in the diagnosis of neck swellings, the current investigation was carried out. False positive and negative outcomes are among FNAC's limitations.

Material and Method

This study was carried out in the Dept of E.N.T and Dept of Pathology J.L.N.M.C.H BHAGALPUR from June 2021 to June 2022. All patients clinically diagnosed as having benign neck swelling planned for surgical management were enrolled in the study.

Inclusion criteria

1. Patients with complaints of neck swelling

Exclusion criteria

1. Patient with co-morbidities
2. Patients who do not give consent to the study were excluded.
3. Patients with advanced staged carcinoma of the neck have previously been diagnosed and treated.

Detailed All patients underwent a clinical examination and clinical history. Cytological and USG tests were performed on those with benign neck edoema. When the USG results suggested a malignancy or were ambiguous, additional radiological tests like a CT scan and/or an MRI were performed. The patient's inpatient records were used to gather and tabulate the information for the samples [3-6].

Result

In our one-year study, the age range of the presentations was 3 to 75 years. In the present investigation, the thyroid tissue accounted for 38% of the edoema. Subcutaneous tissue (20%), submandibular gland (2%), and cervical lymphadenopathy (36%) came after that. Lymph nodes make

about 4% and the deep neck space 2%, respectively. Simple goitre (14.4%), multimodular goitre (42.5%), and solitary thyroid nodule (16.3%) were the three most common thyroid enlargements. 13.2% of the solitary thyroid nodules were on the right side, while 3.1% were on the left. Histopathology assigned 86.9% benign and 13.1% malignant diagnoses to all clinically benign cases. By USG, 94.9% of cases were determined to be benign and 5.6% to be malignant, whereas in the FNAC examination, 89.4% of cases were determined to be benign and 6.9% to be malignant, with the remaining 3.8% of cases being cytologically inconclusive. During surgery, we discovered that just 6.9% of patients had characteristics that might point to cancer, whereas the other 93% were benign. Radiologically and histopathologically, all cases were identified as neoplasms that were both malignant. In addition, several benign cases that were missed by previous inquiry techniques were later shown by histology to be malignant.

Seven out of the 50 cases were found to be malignant, with the majority, or six cases, being papillary thyroid cancer and two cases being follicular neoplasm. Histopathology revealed that a single case that reviewer 1 and reviewer 2 both classified as neoplasms and as malignant turned out to be benign.

Out of 24 cases of cervical lymphadenopathy, 5 were found to be malignant. One cervical lymphadenopathy case that was benign in both radiological and cytological investigations was ultimately determined to be malignant by histopathological examination, while the other case had been radiologically benign but had been proven to be malignant by histopathology.

Three of the four parotid edoema patients we considered in our investigation turned out to be Pleomorphic adenomas. One example that was initially suspected to be benign radiologically and cytologically but was ultimately determined to be malignant

by HPE. One among the 9 cases of the thyroglossal cyst was proven to be benign by histopathology.

Discussion

Patients with visible or palpable neck masses frequently present to an otolaryngologist. Therefore, when making a diagnosis and treating such a patient, one should be logical and meticulous. In the current study, I aimed to establish the function of FNAC in the therapy of such patients by demonstrating its diagnostic sensitivity and specificity in contrast with histological testing, which is an accurate but pricey, time-consuming, and also intrusive process. Histopathological analysis was used to make the diagnosis. This study's rate of unacceptable smear is similar to those of another research [7].

Out of 50 cases in this study, 19 (38%) were men and 31 (62%) were women. There were 1.63 men for every woman. The ratio of men to women is comparable with other studies.

The patient age range in the current study was 4 to 65 years. The fourth decade contained the greatest number of cases. The third and second decades came after that.

According to the current series, 40% of neck masses had thyroid origins, which is consistent with prior investigations. Out of 20 cases of thyroid swelling, 12 (or 60%) were histopathological determined to be multimodular goitres, which is equivalent to other cases [8].

Here, FNAC exhibits a high sensitivity of 91% and specificity of 1% for nodular goitre. However, in the case of thyroid cancer, its sensitivity is just 60% since it cannot distinguish clearly between follicular carcinoma and follicular adenoma. Despite being quite sensitive, 100% of thyroid papillary cancer cases. It is comparable to other studies.

The majority of cases (48%) with cervical lymphadenopathy involved tubercular lymphadenitis in 11 cases (46%). This

agrees with the conclusions of little other research. This study's high and consistent with other studies sensitivity of 91% and specificity of 100% of FNAC for detecting tubercular lymphadenopathy [9].

Only one false negative tubercular lymphadenopathy result was discovered by FNAC in this investigation, which may have been caused by an insufficient aspirate or observer mistake.

Metastatic carcinoma was discovered in 21% of all cervical lymphadenopathy, and other investigations have found that the sensitivity and specificity for detecting such a tumour are 100%.

Once a clinical or tissue diagnosis has been made, it is then possible to determine whether additional imaging or testing is required. Only a straightforward chest X-ray may be required if the diagnosis is infectious or inflammatory. Following a diagnosis, computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET) scan may be necessary singly or in combination to determine the specific anatomical location, extent, and radiological staging of a malignant lesion [10].

In the current study, we examined the 50 case FNAC report. In 47 (94%) of these cases, acceptable smears were discovered. The susceptible age group was those between the ages of 21 and 30 (18 cases), followed by the age group of 20 years in (36%) cases whose smears were unsatisfactory as they demonstrated in sufficient material (8 cases) [11].

Conclusion

FNAC can be used as a rapid, safe, simple, low-cost, and reasonably accurate approach to diagnosis, management, and follow-up in an outpatient setting. A preoperative cytological diagnosis of a benign lesion in a high-risk patient may prevent the need for surgical intervention, which is why this study is significant, especially in the context of thyroid enlargement. Avoiding unnecessary

procedures may also be possible with a preoperative diagnosis of some illnesses, such as lymphoma and inflammatory pathology. This operation is risk-free, trouble-free, and typically does not require anesthetic regimens, giving quick results.

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