Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV= 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

A Retrospective Study on Investigation of Cytological Accurateness in Metastatic Lymphadenopathy

[1]Dr Umesh Kumar Khandelwal, [2]Dr Monika Gupta

[1]Assistant Professor, Department of Medical Oncology, National Institute of Medical Sciences & Research, Jaipur, Rajasthan, India;
[2]Associate Professor, Department of Surgical Gastrotentology, National Institute of Medical Sciences & Research, Jaipur, Rajasthan, India

ABSTRACT:
Introduction: Study was undertaken to evaluate the diagnostic role of fine needle aspiration cytology in superficial lymphadenopathy in a regional cancer. Very often, the diagnosis of preterm labour is itself difficult and most often made at an advanced stage of labour. **Materials and Methods:** The smears were stained with Papanicolaou, Leishman, Hematoxylin and Eosin stains. Where-ever tissue samples were available sections were stained and processed with Hematoxylin and Eosin stain. Cyto-morphological features like cell population, cellular pattern, individual cell morphology, etc. **Result:** Out of the 312 cases of metastatic lesions, 162 cases were squamous cell type, 46 cases were invasive ductal and 31 cases were adenocarcinoma. **Conclusion:** It is suitable for developing countries with limited financial and health care resources by which in the hands of an experienced person can minimize the economic burden and avoid the need for excision biopsy.
Keywords: Cytological, Metastatic Lymphadenopathy, Retrospective Study

Received: 10 February, 2021 Accepted: 18 March, 2021

Corresponding author: Dr Monika Gupta, [2]Associate Professor, Department of Surgical Gastrotentology, National Institute of Medical Sciences & Research, Jaipur, Rajasthan, India

This article may be cited as: Khandelwal UK, Gupta M. A Retrospective Study on Investigation of Cytological Accurateness in Metastatic Lymphadenopathy. J Adv Med Dent Scie Res 2021;9(4): 154-157.

INTRODUCTION

Though, clinical recognition of a neoplastic lesion by detailed history taking and examination is frequently possible by experienced clinicians, true identification of the metastatic or primary nature, morphology, grade and typing requires diagnostic work up. Occasionally, lymphatic metastasis is the first sign of malignancy with early detection, playing a pivot role in management and prognosis. Indeveloping countries, wheretubercular lymphadenitis is commonly reported, a large percentage of cases with persistent mass in neck turn out to be malignant on cytological examination. In contrast, persistent neck masses in paediatric population rarely turn out to be malignant.[1] The primary malignancies of lymph nodes, i.e. the lymphomas usually range from 2% to 15.3% among all aspirates.

The technique is minimally invasive and gives speedy result.[2] Highly acceptable, simple, rapid, and cost-effective procedure that is feasible in our current scenario.[3] It can be used as safe alternative to excision biopsy.[4] Lymph node enlargement occurs in a wide spectrum of diseases including reactive conditions, infections, and malignancy.[5] One of the most common etiologies is tuberculosis which is very rampant in our country.

It almost offers an accurate diagnosis for reactive lymphoid hyperplasia, infectious disease, granulomatous lymphadenitis and metastatic lesions.[6] Although histopathological examination is considered to be gold standard in diagnosis especially in lymphomas, FNAC maybe the only tool for diagnosis and further management of the patients in metastatic malignancy as it provides clues for occult primaries.[7] Implementation of the WHO recommendations of 2015 to improve the outcome of preterm birth like use of corticosteroids, tocolytics, and magnesium sulfate for neuroprotection and special care of the preterm

neonate is essential for neonatal survival.[5] Despite advances in perinatal medicine in recent decades, preterm delivery continues to pose a challenge to both the obstetrician and the neonatologist. Keeping the above scenario in mind the present study was undertaken to analyse the different demographic and obstetric risk factors which influence the neonatal outcome of preterm births and to assess the neonatal mortality and morbidity in preterm births.

MATERIALS AND METHODS

All the patients that underwent FNAB gave written informed consent for the same as per institutional guidelines. The details of history, clinical examination and relevant investigations were noted in all the cases as per available records. In all cases, FNA of suspected lymph nodes was performed using 22-24 gauge disposable needles attached to a 10 ml syringe. The smears were stained with Papanicolaou, Leishman, Hematoxylin and Eosin stains. Where-ever tissue samples were available sections were stained and processed with Hematoxylin and Eosin stain. Cyto-morphological features like cell population, cellular pattern, individual cell morphology, etc. were assessed under low and high power microscopy. Special stains like Periodic acid Schiff (PAS) and immunological stains were done where ever necessary. In cases where a cytological diagnosis of metastatic lesion was offered, an excision biopsy and radiological investigations were advised in search of primary site.

An unstructured questionnaire was used to assess the demographic, obstetric and medical history of the patients. All patients were subjected to at least one ultrasonography examination in the labour room to assess the gestational age and liquor status. Birth weights of the neonates were assessed using the electronic weighing scale. The Apgar score was assessed by the neonatologist and the data was collected from the Neonatal Intensive Care Unit (NICU) records. Sepsis, Hyaline membrane disease (HMD) and Hyperbilirubinemia were recorded from the NICU records.

The study extended for a period of two years and participants were enrolled as required for the study. Data was entered into excel and doubled checked for eliminating the data entry errors. To maintain the confidentiality, data was entered anonymously using separate codes and personal identifications were avoided.

STATISTICAL ANALYSIS

Descriptive measures were assessed on postnatal outcome and various sociodemographic, medical, obstetric risk factors and gestational age. Bivariate analyses were conducted using chi-square test to find if any associations existed between outcome measures and various independent variables.

RESULTS

During the 2 year period, FNA was performed in a total of 380 cases with clinical suspicion of malignancies in the lymph node, of which the diagnosis was rendered in 368 cases. The size of lymph nodes ranged from 0.5-5 cm in diameter in most of the cases, while the average size was between 1-2.5 cm. Unsatisfactory smears were reported in 12 cases as repetition of the procedure also failed to deliver satisfactory material in these cases. The cause for unsatisfactory smears in such cases was either very scant cellularity or poor quality of smears due to drying artefact or inadvertent mixing with blood. Of the 368 cases reported with neoplastic lymphadenopathy, 312 cases were identified as metastatic tumors in lymph node and 56 cases were of lymphoma.

In the given 368 cases, the gender distribution revealed male preponderance with 249 cases males and 119 cases females. The maximal number of lymph nodes involved, were of cervical group with 224 cases, followed by axillary group in 59 cases [Table 1].

Table 1: Involvement of various group of lymph nodes

Age Group	**No. of Cases**
0-15	5
16-30	36
31-45	52
46-60	115
>60	160
Total	368
Group of lymph node	**No. of cases (%)**
Cervical	224 (71.7)
Axillary	59 (18.9)
Supraclavicular	30 (9.6)
Inguinal	26 (8.3)
Mediastinal	20 (6.4)
Mesenteric	9 (2.8)
Total	368

Out of the 312 cases of metastatic lesions, 162 cases were squamous cell type, 46 cases were invasive ductal and 31 cases were adenocarcinoma [Table 2].

Table 2: Distribution of cases according to the type of malignant lesion

Type of carcinoma	No. of cases (%)
Squamous cell carcinoma	162 (51.9)
Breast carcinoma (Invasive Ductal Ca)	46 (14.7)
Adenocarcinoma	31 (9.9)
Poorly differentiated carcinoma	25 (8.0)
Mucoepidermoid carcinoma	11 (3.5)
Small cell carcinoma	8 (2.5)
Large cell carcinoma	9 (2.8)
Endocrinal type	6 (1.9)
Thyroid carcinoma	5 (1.6)
Small round cell tumor	3 (0.9)
Adnexal	2 (0.6)
Nasopharyngeal carcinoma	2 (0.6)
Melanoma	2(0.6)
Total	**312**

DISCUSSION

We performed maximum number of aspiration from cervical nodes (62.01%), which can be attributed to a large number of cases having head and neck malignancy, along with ease of accessibility for examination and procedural performance.We could identify the primary site of malignancy in approximately 93% cases of metastatic lesions with the help of clinical data and FNA in our study. With the support of clinical history and investigations, FN Aproved to be helpful in defining the tumor type in most of the cases. Facundo *et al*,[8] were able to find primary in 59% cases, while the efficiency increased to 95% in combination with immunochemistry. These findings again establish the role of FNA in the identification of occult primary sites and typing of tumor cells.

Lymphadenopathy is the term to describe the conditions in which lymph nodes become abnormal in size, consistency, and number. Lymphadenopathy as a clinical manifestation of the regional or systemic disease serves as an excellent clue to the underlying disease. It can arise either from benign or malignant causes depending on the geographical condition and socioeconomic setup.[9] It has been observed that lymphadenopathy can be seen in patients ranging from very early to advance age with various etiology.[9]

According to current results, malignant disorders were more common (51.27%) than benign disorders (48.27%). This finding was consistent with the study done by Steel et al, who found that the majority of their cases (59%) were malignant and (34%) were benign.[10] They attributed the cause to the fact that the western countries, where their study was carried out, show predominance of malignant lesions over the benign conditions. Although in eastern country where most of the cases are due to infections and tuberculosis, the predominance of malignant cases in the present study, attributed to the fact that the study was carried out in a regional cancer centre.[11]

The previous obstetric history is a significant determinant of the perinatal outcome in preterm births. Several studies have showed that the risk of preterm birth is higher in patients with a history of abortion or a history of preterm birth. Studies have shown significant correlation between the number of previous abortions and the risk of preterm birth.[12,13] There is a 32 % increased risk of preterm delivery after 3 preterm deliveries compared to 15 % with history of one preterm delivery according to Carr-Hill.[14,15] In this study, previous history of one preterm birth /one PPROM or a history of preterm birth combined with a history of one abortion had a higher risk of perinatal mortality than pregnancies with no antecedent history. Hence the identification of pregnancies with risk factors at the primary health centre levels and timely referral can modify the outcome of preterm births. 44.8% of the preterm births in present study were unexplained. Similar observation has been reported by Beck et al.[16] In present study, hypertensive disorders which were associated with 18.64% of preterm birth was the most important medical risk factor. This is comparable to the studies by Fernades et al at 21.07% but higher than the studies of Shreshta et al at 13.3 % and Taskeen et al at 14%.[17] Hypertensive disorders are also the highest contributor to the perinatal mortality. The prematurity in hypertensive disorders is both due to spontaneous preterm as well as medically indicated termination of pregnancy. Identification and

institution of early treatment in hypertensive disorders, referral to obstetric units with level 3 NICU facilities will reduce the prematurity associated with hypertensive disorders.

CONCLUSION

FNAB is of considerable value in the documentation of metastasis disease and staging in known primary and occult tumors. It has high diagnostic accuracy with bare minimal false positive results while diagnosing a suspected malignant lymphadenopathy. It is suitable for developing countries with limited financial and health care resources by which in the hands of an experienced person can minimize the economic burden and avoid the need for excision biopsy.

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