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Trends in Benign and Malignant Lesion on FNAC

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Conflicts of Interest: Nil

Abstract

InLast two decade FNAC has been introduced as most reliable and cost effective method for diagnosis of superficial palpable and intraabdominal lesions. A total number of 1462 FNAC were carried out over a period of one year from Jan 2016 to Dec 2016 and data were analysed. 77.2% lesion was bengin in nature and remaining of 22.8% were malignant lesions. Out of which majority of lesion were found in Cervical lymph node (27%) followed by Skin and Subcutaneous tissues (26.7%) and then breast (24.6%). We also analysed tubercular lesion acoording to age and organ wise. This technique is cost effectively with minimal invasive procedure with very few complications. FNAC has high sensitivity and specificity in diagnosis of lesion.

Introduction

During last two decades FNAC has emerged as the most reliable and effective method in the diagnosis of benign & malignant lesions and there by better and early management of the lesions. FNAC is an inexpensible, simple, rapid method in recent setting and even USG and CT Guided FNAC has made Pathologist to reach Lesions of difficult access. The FNAC had its origin at the Kardinska Institute and Radium hemmeat from ther it spread to the memorial sloan – Kettering Cancer centre in 1950. After a period of relative obscurity the techniques was reintroduced via Scandinavia and had continues to grow in prestige and importance in armamentarium in Europe and North America.

FNAC has rapidly gained acceptance due to the easy accessibility of target site and minimally invasive nature. It plays an important role in early diagnosis of lesion. It is an accurate technique for the diagnosis of benign and malignant palpable mass lesion and used frequently without image guidance. FNAC is safe outdoor procedure with rapid reporting and require minimal equipment. It has minimal complication such as bleeding and infection.

Material and Methods

This study was conducted over a period of one year from January, 2016 to December, 2016. Patients presenting with supercially palpable lesions and intraabdominal lesion in General surgery OPD or admitted in hospital underwent FNA.A total of 1462 cases were studied. Out of which benign lesion were 1128 and malignant were 334. Ratio of Bengin versus Malignant is 3.3:1

The palpable swelling was fixed with one hand and with all aseptic precaution, 22G – 23G needle with 10 ml syringe was inserted into the swelling and a negative pressure was applied. The aspiration material was smeared on glass slide and smear made were revlevantly stained. Giemsa, Papanicolaou, haemotoxiylin and Eosin (H& E) stain. L.N. swelling with purulent ceesy material as aspirate with clinical suspicion of TB was stained with ZN stain.

Statistical analysis \rightarrow Data was computerized with window SPSS version 16 specificity sensitivity accuracy and predictive value were calculated 'p' value were also calculated while correlation was seen by pearson correlation curve.

Result

A total of 1462 FNAC were carried out over a period of one year and data were analysed accordingly.

TABLE - I: Distribution of lesion on FNAC

No. of cases (1462)		Percentage %
Benign	1128	77.2
Malignant	334	22.8



Figure 1: Distribution of lesion on FNAC

TABLE – II: In our study total number of male and female ratio in Benign condition

No. of cases		Percentage
Male	477	42.3%

Female	651	57.7%

Table – III: In our study total number of male and female ratio in Malignant condition

No.	of cases	Percentage
Male	154	61.4%
Female	180	38.6%

TABLE IV: Age wise distribution

Age(yr)	Benign	Malignant
0 – 20	410	14
21 - 40	369	108
41 - 60	278	116
61 – 80	65	66
>80	6	30





TABLE V: Organwise distribution of lesion on FNAC

Organ	No of lesion	Percentage %
Cervical LN	394	27
Inguinal LN	42	2.6
Axillary	64	4.4
Thyroid	127	8.5
Breast	352	24.6
Parotid	20	1.3
Liver	36	2.5
Gall Bladder	25	1.7
Pancreas	5	.32





Figure 3: Organ wise distribution of lesion on FNAC TABLE VI: Organwise benign / malignant lesion on FNAC

Organ	Benign condition	Malignant
		condition
Cervical LN	327	67
Inguinal LN	37	5
Axillary	54	10
Thyroid	99	28
Breast	246	106
Parotid	19	1
Liver	3	33
Gall Bladder	0	25
Pancreas	0	5
Appendix	6	0
Skin and	337	54
subcutaneous		
tissues		



Figure 4: Organ wise benign / malignant lesion on FNAC Table VII: Type of Benign lesion on FNAC

ThyroidImage: Second SystemThyroditis37(37.7%)Colloid Goitre62(62.3%)BreastSecond SystemFibroadenoma92(37.3%)Fibroadenoma92(37.3%)Fibroadenosis20(8.1%)Fibroadenosis20(8.1%)Phylloid Tumor5(2%)Gynaecomastia10(4%)Galectocoele7(2.8%)Miscellaneous28(11.7%)Cervical LNImage: Second SystemLymphadenopathy104(31.8%)Cyst28(8.5%)Inflammatory52(15.9%)Tubercular98(29.9%)Haemorrhagic47(13.9%)Axillary LN16(29.6%)Inflammatory18(33.3%)Tubercular17(31.4%)Miscellaneous5(6.7%)Inguinal LNImage: Second System	Benign lesions	No. (%)
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Tubercular 98(29.9%) Haemorrhagic 47(13.9%) Axillary LN 16(29.6%) Inflammatory 18(33.3%) Tubercular 17(31.4%) Miscellaneous 5(6.7%) Inguinal LN 1000000000000000000000000000000000000	Inflammatory	52(15.9%)
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RHLN 16(29.6%) Inflammatory 18(33.3%) Tubercular 17(31.4%) Miscellaneous 5(6.7%) Inguinal LN Image: Comparison of the second	Axillary LN	
Inflammatory18(33.3%)Tubercular17(31.4%)Miscellaneous5(6.7%)Inguinal LNInguinal LN	RHLN	16(29.6%)
Tubercular17(31.4%)Miscellaneous5(6.7%)Inguinal LNInguinal LN	Inflammatory	18(33.3%)
Miscellaneous5(6.7%)Inguinal LN	Tubercular	17(31.4%)
Inguinal LN	Miscellaneous	5(6.7%)
1	Inguinal LN	

Lymph adenopathy	16(43.2%)
Tubercular	3(8.2%)
Miscellaneous	18(48.6%)
Appendix	
Appendicitis	6(100%)
Parotid	
Pleomorphic adenoma	6(31.5%)
Sialadenitis	5(26.3%)
Cyst	3(15.7%)
Swelling	3(15.7%)
Tubercular	2(10.8%)
Liver	
Benign condition	3(100%)
Skin & subcutaneous tissue	
Lipoma	94(27.8%)
Cystic lesion	68(20.1%)
RH LN	21(6.2%)
Haemorrahgic	14(4.1%)
Inflammatory	23(6.8%)
Miscellaneous	61(18.1%)
Tubercular	54(16.9%)
Pancreas	Nil
Gall Bladder	Nil

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Table VIII: Type of Malignant lesion on FNAC	
Malignant lesion	No. (%)
Thyroid	
Papillary	20(71.4%)
Follicular	5(17.9%)

Medullary carcinoma	3(10.7%)
Breast	
Ductal carcinoma	89(84%)
Atypical ductal	17(16%)

Cervical LN	
Squamous cell carcinoma	52(77.6%)
Adenocarcinoma	15(22.4%)
Axillary LN	
Metastatic deposit	10(100%)
Inguinal LN	
Metastatic deposit	5(100%)
Parotid	
Adenocystic carcinoma	1(100%)
Liver	
Metastatic deposit	33(100%)
Skin and Subcutaneous	
Squamous cell carcinoma	44(81.4%)
Basal cell carcinoma	7(13%)
NHL	3(5.6%)
Pancreas	
Adenocarcinoma	5(100%)
Gall Bladder	
Adenocarcinoma	25(100%)

TABLE IX: Tubercular lesion: Distribution of tubercular

lesion organ wise

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Lesion	No. of cases	Percntage %
Cervical lesion	98	51.57%
Prearticlar LN	10	5.25%
Axillary LN	17	8.76%
Inguinal LN	3	1.54%
Breast	12	6.18%

Skin and	54	28.8%
subcutaneous		

TABLE X: Tubercular lesion according to AGE

Age(yr)	No. of cases
0-20	24
21=30	34
31-40	30
41-50	20
51-60	40
61-70	32
71-80	14
81-90	0
91-100	0



Figure 5: Tubercular lesion according to AGE.

Discussion

FNAC hence the most easy and Appropriate tool for the diagnosis of any swelling superficial palpable or even deep (under CT or USG guided lesion)

One can get on site with immediate report and minimal cost using inexpensive equipments and simple technique. The most significant advantage of FNAC is the high degree of accuracy rapid result and less invasive procedure than tissue biopsy.¹⁻⁵

The frequency of inadequate smears case are variable is different studies ranging from 0 to 57% depending on various factors. The main cause for inadequate smears may be due to either lack of technical experience in performing FNA, preparation and fixation of smears. FNA of ill defined mass like lesion with hyalinization and deply located lumps may contribute to inconclusive diagnosis which were excluded from our study^{6,7}

Our data collected has shown a trend of bengin and malignant lesion presented to department of surgery. However we cannot predict about over all incidence rate of malignancy in Kanpur and surrounding area. Various Parameters like age distribution, nature of lesion, sex predilection, organ wise distribution, where ever possible were evaluated by us and finding compared with other studies. As mentioned many studies shown that 60-75% are benign lesion and 25-35% are malignant lesion which is similar to our study result showing bengin lesion are 77.8% and malignant are 22.8%.

Total number of lesions studied by us are 1462 in which largest number of aspirates from cervical lymph node (394 case) followed by skiun and subcutaneous tissue (391) and then from breast (352). Other studies from Indian subcontinent have also shown that the most common site of FNAC of head and neck lesion from lymph node.⁹⁻¹¹

However in study carried out at tertiary centre in southern India the largest number of FNAC were from Thyroid gland constituting 56.45% case. Peak incidence of lesion in this study group was between 21-40 yr age group which is similar to findings of other studies. In our study there werec352 case of breast in which bengin are 246 and malignat lesion are 106. Out of 246 bengin lesion fibro adenoma are 92, fibrocystic disease were 84, fibro adenosis were 20 and remaining were miscellaneous. Out of 106 malignant cases 89 were ductal carcinoma and 17 were atypical ductal carcinoma. In other studies bengin lesion of breast were 171 and Malignant were 90 and remaining case were unsatisfactory which require histopathology¹ and In conclusive fnac were exclude

from our study. Many inflammatory breast lesion create confusion in а palpable mass. Mammographic, sonographic and MRI may not distinguish some of bengin lesiom like duck ectasia, fat necrosis from malignant lesions. Whereas FNAC gives a conclusive diagnosis in mmajority cases. In thyroid swellings total number of case enrolled by us are 127 out of which bengin lesion are 99 and malignant are 28. Bengin are of two types thyroditis and colloid goitre which are 37 and 62 case respectively and papillary, follicular, and medullary carcinoma of thyroid which were 20, 5, 3 case respectively. Other studies showed Bengin lesion were 1054 and malignat were 128.8 In our study majority of lesion are also seen in Skin and Subneutaneous tissue which show bengin lesion are 327 and malignant are 67 in number. In other studies Bengin lesion of Skin were 38 and malignant were 2 in number.9 Among Malignat lesion Squamous cell carcinoma is most common. We also include Salivary gland lesion which shows bengin lesion were 19 and malignat was 1 that is adenocystic carcinoma, other studies shows bengin were 10 and malignat was 1.⁹ In this article we also show the pattern of tubercular lesions organ wise and age wise. Tubercular lesion most prone in cervical lymph node that is 98(51.57%) lesion followed by skin and subcutaneous tissues 54(28.8%) lesion. Least in inguinal lymph node 3 lesion (1.54%) And these data are similar to other studies also. Tubercular lesion are most seen in 21-40yr age group.

Conclusion

The FNAC is the best and effective tool for diagnosis of benign and malignant lesions. In our study we have tried to analyse the fnac dat which has given us athe pattern of benign & malignant lesions in our paients load. But this will not predict the incident or prevelance rate of different lesions. However ther is high incidence of nodal tuberculosis in Kanpur and its surroundind area.

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