Section: Pathology

Original Research Article

SPECTRUM OF VARIOUS CYSTIC LESIONS IN BODY DIAGNOSED BY FNAC; A STUDY IN TERTIARY HOSPITAL AND CARE

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Abstract

Background: Cystic swellings are not very uncommon and there are many kinds if cysts which can be noticed in present scenario. These may be simple cyst, infected cyst or the malignant one. The correct diagnosis of these cystic swellings is of great importance for therapeutic aspect. Objectives: The aim of present study is to diagnose the different type of cysts in the body. **Materials & Methods:** In this study 108 patients of different cystic swelling were included over a period of one year. The findings were correlated with clinical diagnosis, FNAC and histopathological report wherever done for its diagnostic reliability. This study was carried out in the Department of Pathology, Rohilkhand Medical college, Bareilly. **Results:** The analyzed data was presented by various tables. Out of total 108 cases of body cystic swellings 68 (62.40%) cases were of Head and Neck cysts. The male, female ratio was 1.4: 1. Age range was 1– 75 years with maximum frequency in the 21- 40 yrs of age. Out of the cases studied maximum cases (32%) were Epidermoid cyst followed by thyroid cyst, parasitic cyst, mucus retention cyst etc. **Conclusion:** Our study found that clinical examination followed by FNAC is simple, quick, inexpensive and minimally invasive technique to diagnose various cystic lesions. It is concluded that among all the cystic swellings head and neck cystic swellings are the most common conditions encountered but malignancy may also be seen in rare cases and at rare sites which may be missed. So to overcome this problem residual solid mass after aspiration of the cystic swelling should always be re aspirated to rule out any hidden high grade lesion or malignancy.

INTRODUCTION

Cystic lesions of the body have great clinical significance. The role of fine needle aspiration cytology (FNAC) in the diagnostic evaluation of non-neoplastic and neoplastic lesions has increased dramatically in recent years. An early differentiation of benign from malignant pathology greatly influences the therapeutic approach.

Cystic swellings can commonly be seen in different parts of body but Head and Neck is a preferred site. Cysts may present as simple cysts, benign tumors, malignant lesion or metastatic deposits.

The typical clinical sign of cystic swellings is fluctuance but many a times it is not elicited because the contents may be tense or thick.Cysts are commonly present in the neck region including congenital cysts like branchial cleft cysts, thyroglossal duct cysts (TGDCs), ectopic thymus cysts, dermoid cysts and teratoid cysts, cystic vascular abnormalities, and lymphatic malformations such as the cystic lymphangioma .The most common cyst i.eEpidermoid cyst is a developmental cyst occurring in the neck region and termed as epidermal , epithelial , keratin , sebaceous , milia, or epidermal inclusion cyst. The most common site for these lesions is the lateral aspect of the eyebrows and are most common in the 3rd and 4th decade of life with a slight male preponderance.[1]

Lymphatic filariasisaffects more than 120 million people worldwide, and WHO stated filariasis as the second leading cause of permanent and long-term disability after leprosy. It is caused by W. Bancrofti which reside in the lymphatics and cause progressive lymphatic vascular dilation and various pathologic lesions in organs such as lower limbs, spermatic cord, epididymis, testis, retroperitoneum, and rarely in the female breast. Despite high

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incidence, it is infrequent to find microfilariae in fine needle aspiration cytology (FNAC) smears.[5]
Malignancies are rare in cystic swellings but due to its possibility, swelling should always be examined for any residual solid area or hidden mass.
Hence this study was conducted to assess the different types of cystic lesions reported on cytology and to categorize them in to inflammatory, non–neoplastic and neoplastic lesions.

MATERIALS AND METHODS

The present study was a retrospective type, done on 108 cases of cystic swellings in different parts of body done in pathology department in a tertiary care center of western (UP), over a period of one yeari.e July 2021 – July 2022. Inclusion criteria was all clinically diagnosed cystic swellings. Exclusion was on the basis of inadequate sample and slides which were inadequate for reporting on the basis of microscopy. The swellings were examined clinically and fine needle aspiration was done for cytological examination followed by histopathological examination wherever possibly done.The smears were stained with May Grünwald Giemsa, Leishman-Giemsa, Papanicolaou and Haematoxylin& Eosin stains.

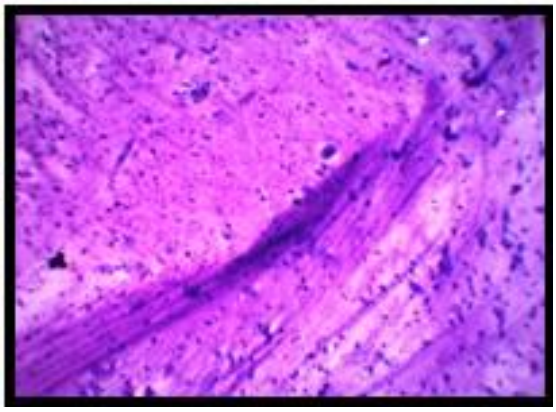

Figure 1: Leishman and Geimsa Stain 40x Showing Mucus Retention CYST

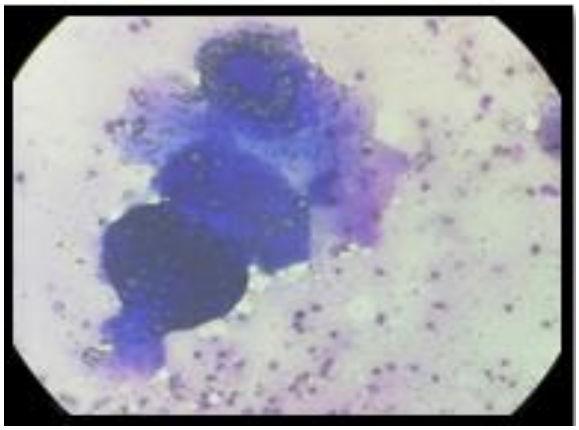

Figure 2: Leishman and Geimsa Stain 40x Showing Wall of CysticercusCellulosae and Hooklets

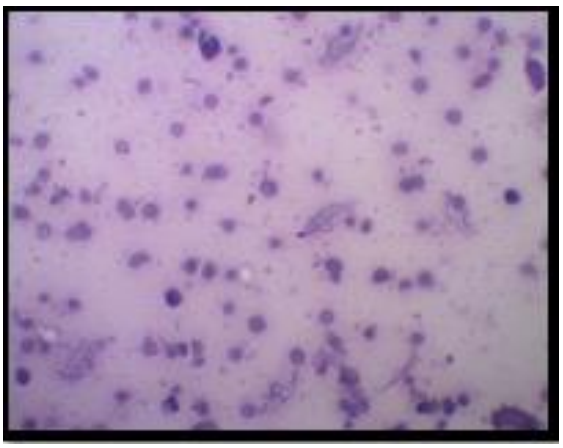

Figure 3: Leishman and Geimsa Stain 400x Showing Hooklets of Hydatid CYST

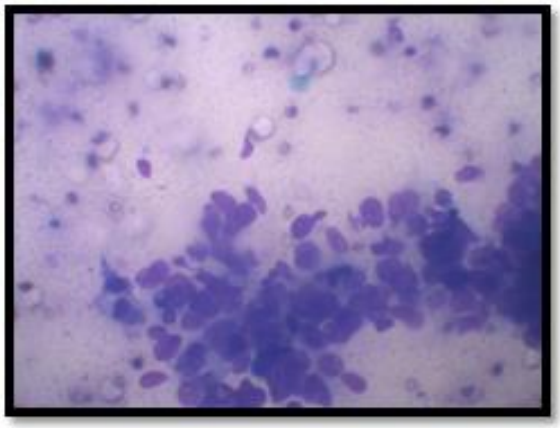

Figure 4: Atypical Submandibular CYST Leishman and Geimsa Stain 400x

Figure 5: Colloid CYST with Microfilarialeishman and Geimsa Stain 400x

RESULTS

Among the total 108 cases of cystic swellings age ranges from 1 to 75 years. Table I shows the different cystic lesions as per age and sex.
It was observed that maximum incidence (39.80%) of cystic swelling present in the age group of 21- 40 years and minimum incidence (4.63%) was observed in patients of > 60 yrs. Minimum age observed among patients was one-year-old and

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maximum age was 75 years old and the mean age was found to be 29 years.

Among the sex, males were more common than females with Male: female ratio 1.4:1. In malignant cases maximum cases were observed in males i.e 75 %.

Among the diagnosis, Epidermal/sebaceous cyst was found to be most common diagnosis 35 cases (32.4 %) followed by other benign conditions i.e other simple benign cysts 21 cases(19.44%), breast cyst 11 (10.18%), parasitic cyst 10 (9.30%) which includes Microfilarae in testes, Cysticercosis and Hydatid cyst in neck.

Others with lower incidence like ganglion cyst 8 (7.40%), retention cyst 7 (6.52%), lymphoepithelial cyst and thyroid cyst with 4 (3.70%) cases each followed by two cases of aneurysmal bone cyst (1.85%) and one case of branchial cyst and one case of synovial cyst (0.92%). [Table 1]

It was observed that out of total 108 cases, four cases were found to be atypical among which two cases of atypical cysts (1.85 %) were reported which were further confirmed by histopathology, one was reported as metastatic carcinoma (0.92%) and one case of breast cyst with features of atypical ductal hyperplasia in male (0.92%) was reported and it was then diagnosed as extremely rare case of intracystic papillary carcinoma on histopathological examination.

Site of distribution of total 108 cases with cystic swellings which showed Maximum cases reported in head and neck region 66 cases (61.10%) followed by back and trunk 22 (20.30%), lower extremity 10 (09.30%) and upper extremity 10 (09.30 %). [Table 2]

Distribution of the cystic lesions in total cases of head and neck region (66) which also showed epidermal/sebaceous cyst to be the most common diagnosis 24 (36.36%) followed by simple benign cysts 16 (24.24%), mucus retention cyst 7 (10.60%) parasitic cyst 6 (9.0%), thyroid cyst 4 (6.0%),lymphoepithelial cyst 4 (6.0%), one case of aneurysmal bone cyst and branchial cyst each (1.60%).

Both reported cases of cyst with atypical squamous cells were found in head and neck region (3.0%) and one case (1.60%) was reported as metastatic carcinoma. [Table 3]

Histopathological correlation of cases in context with the cytological diagnosis which showed some diagnostic dilemma in few cases and few were in accordance with cytological diagnosis. one case of simple cyst was reported as nodular hidradenoma. One case of synovial cyst was later reported as tubercular synovitis on histopathology. One case of sebaceous adenoma was reported which was reported as infected cyst on cytopathological examination. Cases with atypical squamous cells were confirmed by histopathology and one case of breast cyst with atypical ductal hyperplasia in male was came out to be a rare diagnosis of intracystic papillary carcinoma. [Table 4]

Table 1: Table I: Distribution of Lesion According to Age and Sex

	Age Groups With Years And Sex									
	<20		21-40		41-60		>60		TOTAL	
Lesion	M	F	M	F	M	F	M	F	N	%
Epidermal /Sebaceous Cyst	6	8	12	1	4	3	1	-	35	32.40
Other Cystic Lesions	5	-	6	8	-	1	1	-	21	19.40
Ganglion Cyst	3	-	2	-	1	2	-	-	08	7.40
Breast Cyst And Breast Cyst With Atypia	-	2	-	8	- 1	1	-	-	11 01	10.20 0.92
Thyroid Cyst With Thyroglossal Cyst	2	1	-	1	-	-	-	-	04	3.70
Cyst With Parasites	5	2	2	-	-	-	-	1	10	9.30
Aneurysmal Bone Cyst	2	-	-	-	-	-	-	-	02	1.85
Synovial Cyst	-	-	1	-	-	-	-	-	01	0.92
Branchial Cyst	-	-	-	-	-	-	1	-	01	0.92
Mucus Retention Cyst	2	2	-	-	2	1	-	-	07	6.52
Cyst With Atypical Squamous Cells	-	-	-	-	-	1	1	-	02	1.85
Metastatic Carcinoma Cyst	-	-	-	-	1	-	-	-	01	0.92
Lymphoepithelial Cyst	-	-	1	-	3	-	-	-	04	3.70
Total	25	15	25	17	12	9	4	1	108	100

Table 2: Site Distribution

Site	Number	Percentage (%)
Head And Neck	66	61.10
Upper Extremity	10	9.30
Lower Extremity	10	9.30
Back And Trunk	22	20.30
Total Number Of Cases	108	100

Table 3: Diagnosis in Head and Neck Cystic Swellings

Lesion In Head And Neck	Male	Female	Total	%
Epidermal /Sebaceous Cyst	16	08	24	36.36
Other Cystic Lesions	09	07	16	22.24
Thyroid Cyst With Thyroglossal Cyst	02	02	04	6.0

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Cyst With Parasites	3	3	6	9.0
Aneuysmal Bone Cyst	01	-	01	1.60
Branchial Cyst	01	-	01	1.60
Mucus Retention Cyst	04	03	07	10.60
Cyst With Atypical Squamous Cells	01	01	02	3.0
Metastatic Carcinoma Cyst	01	-	01	1.60
Lymphoepithelial Cyst	04	-	04	6.0
Total	42	24	66	100

Table 4: Correlation with Histopathology

Cytological Diagnosis	Histological Diagnosis
Simple Cyst	Nodular Hidradenoma
Cystic Lesion / Synovial Cyst	Tubercular Synovitis
Infected Cyst	Sebaceous Adenoma
Two Cases Epidermal Cyst With Atypical Cells	Squamous Cell Carcinoma
Breast Cyst With Atypical Ductal Hyperplasia	Intracystic Papillary Carcinoma

DISCUSSION

Cystic Swellings are of great concern to the patients. Any patient presenting with cystic swelling has to be examined thoroughly through clinical workup followed by radiological and pathological examination.FNAC is a valuable technique in investigation of cystic swellings. This procedure can easily distinguish between non-neoplastic and neoplastic conditions if carefully done and examined otherwise some hidden high grade lesion may be missed. In the present study of 108 cases of various cystic swellings of body, data were obtained including age of the patients, sex incidence, location of cyst, type of cyst, cytological findings and its histopathological findings wherever done. Aspirated material was pultaceous in maximum cases (32%) and yellow colored fluid was aspirated in only one case (0.90 %). 104 cases were found to be benign on FNAC. Out of the remaining 4 (3.7 %) cases, two cases were diagnosed as Epidermal cyst with atypical squamous cells on FNAC and histopathologically confirmed as squamous cell carcinoma. One case was diagnosed as metastatic squamous cell carcinoma. These atypical cases were found in head and neck swellings. In our study there is one case of Submandibular squamous cell carcinoma i.e 0.9 % which is found similar to a study done by Rosen.j.[6]

Breast carcinoma is an uncommon neoplastic condition among men, accounting for not more than 1% of all breast cancers. it represents 0.6% of all breast carcinomas and less than 1% of all malignancies in men.[19]One extremely rare case of intracystic papillary carcinoma was reported in male breast. Case was reported in 52 years male with left breast subareolar swelling approximately 3cms in diameter and it was ulcerated and associated with bleeding. On FNAC it was reported as atypical ductal hyperplasia along with few bare nuclei and necrotic background. On the basis of cytological findings biopsy was advised. On gross examination it was a well circumscribed tumor which was firm on cut surface. On microscopy it showed well-formed papillae of tumor cells with fibrovascular core.The tumor cells showed mild pleomorphism, hyperchromatic nuclei and loss of polarity.

Scapular aneurysmal bone cysts are rare as in our study only one case was found which is similar to the studies done by kaila R et al and Megas P et al i.e 1.3 % and 1.5 %.[7,8]In our study we found maximum cases of epidermal/sebaceous cyst (35%). In this study maximum cases were reported in head and neck region followed by other parts i.e forearm, back, chest and thigh. The scalp, ears, back, face, and upper arm, are common sites of sebaceous cysts, though they may occur anywhere on the body except the palms of the hands and soles of the feet. This was similar to study done by Darshanet al.[9,10]

FNAC has emerged as a useful diagnostic tool, used for the confirmatory diagnosis of suspected cases of filariasis, especially in cryptic cases where circulating microfilariae are absent, affecting the testis, epididymis, thyroid, breast, and subcutaneous nodules. The typical cytological picture comprises the detection of an adult worm or microfilarial form in a background of eosinophils, mononuclear cells, and neutrophils.

Parasitic incidence carries a great importance among cystic swellings and they should always be considered while examining along with the history and other investigations. Filariasis is a major public health problem in tropical countries, including India. The disease is endemic all over India, especially in Uttar Pradesh, Bihar, Jharkhand, Andhra Pradesh, Orissa, Tamil Nadu, Kerala and Gujarat. A majority of infected individuals in filarial endemic communities are asymptomatic.[11] Despite high incidence, it is infrequent to find microfilariae in Fine needle aspiration cytology (FNAC) smears so careful examination is required. In our study we got 10 (9.25 %) cases of parasitic swelling out of which five cases of microfilarae were found. Out of these five cases, one case was in thyroid which was similar to a case report by gangupadhayet al.[12] One case was reported in testis similar to Patne S et al,[13] thigh and two were in neck. One extremely rare case of echinococcus,granulosus was reported in neck cystic swelling in our study which was similar to a case reported by IndranilChakrabarti and Bidyut Krishna Goswami.[14] Localization in soft tissues is extremely rare accounting for only 2.3% in the

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largest published series consisting of only 24 cases out of 1056 cases.[15] Even in regions where Echinococcosis is endemic, hydatid cyst in the neck is rare and its incidence is unknown(16). Two suspected cases of cysticercosis were reported and none could confirm the diagnosis. Out of these, one was in trunk area which was similar to a case reported by Sinha S et al.[17] In their study , they reported four cases but none of them was confirmed on FNAC. The most common site for occurrence of soft tissue cysticercosis is skeletal muscles of the upper extremities. Abdominal and chest wall lesions are seen less often.[17]Among the thyroid cystic lesions four cases were reported as thyroglossal cyst which presented as midline swellings with M:F as 1:1 but in study done by Chandanwala SS the ration was 1:2. The clinical presentation and microscopic presentation of these cases was similar.[18]

The branchial cleft cyst is a developmental cyst of the lateral neck region. These are the most common congenital neck masses. Branchial cleft cysts comprisesapproximately 75% to 80% of all branchial anomalies. 95% of these cysts are believedto arise from the second branchial arch. King's criteria is that any cyst arising outside the midline of the neck and having lymphoepithelial characteristics should be regarded as a branchial cyst. Cyst appears as soft, fluctuant mass with size ranging from 1 cm to 10 cms in diameter.[2]

Lymphangiomas are rare cystic tumors of the lymphatic system. These lesions are most often seen at birth and diagnosed usually (90%) before the age of 2 years; however, rare cases have been reported in adults too. Cystic lymphangioma usually appears in the neck, axillary region, and mediastinum. Lymphocytes admixed with bland spindle cells and vascular structures lined by flattened cells against a proteinaceous background form the characteristic cytological triad of lymphangiomas. They help in distinguishing it from other differentials like branchial cyst, thymic cyst, pericardial cyst, bronchogenic cyst, cystic teratoma and cystic thymoma.[3]

Aneurysmal Bone Cysts are rare, accounting for 1 – 6 % of all the primary bone tumours. The usual age of presentation is 10 – 20 yearsand it is rare in very young children. There is female preponderance. Most of the lesions arise de novo and are termed as 'Primary ABCs'. ABCs can involve any bone; the favoured sites of involvement being the long tubular bones, the spine and the pelvis. The affected bone characteristically appears cystic and ballooned outwards.[4]

CONCLUSION

Cystic lesions are a common entity. Malignant transformation is known in these lesions. A careful and thorough search is mandatory as highlighted in this study. so any cystic residual massmust also be aspirated to exclude any malignancy or any high grade lesion and it should always be followed by histopathological examination.

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