



CLINICAL MASQUERADES IN PHYSIOGNOMY OF SEBACEOUS CYSTS UNVEILED ON HISTOPATHOLOGICAL EXAMINATION: A SPECTRUM OF CASES

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ABSTRACT

OBJECTIVE: The aim of our study to evaluate the sebaceous cysts on the histopathological assessment to improve preoperative diagnosis. **METHODS:** This study was carried out at a tertiary care hospital from January 2023 to June 2023. The study included a total of 50 patients (n=50). Age, gender, cyst location, symptoms, signs, cyst size, diagnostic radiology, serology, preoperative diagnosis, treatment, morbidity, recurrences, and follow-up time were all obtained from the patient. **RESULTS:** The mean age of patients was 41 (range: 15-50 years). The female and male were 56% and 44%. Mostly patients were belong from rural areas (80%) and non-rural areas (20%). The scalp (32%), cervical region (28%), lower back region (20%), and remaining cysts of leg region (20%) were the most common locations for subcutaneous cysts. The size of the sebaceous cysts was greater >2 cm in 92% of the patients and < 16 cm in 8%. Pain was more common in the scalp and lower cervical region of cysts than in other locations (32% and 28%, respectively). The majority of cysts were 90% mobile in subcutaneous fat tissue. The histopathological examination for the cellular and structural features was performed. Diagnostic radiology was performed, treatment and follow-up. Data was analyzed by SPSS software. **CONCLUSION:** Sebaceous cysts are distinguished by their histological features, which include a cystic structure lined with stratified squamous epithelium and filled with keratin. Confirming these characteristics can help rule out other possibilities.

KEYWORDS: Epidermis, Dermis, Suergery and Tumor.

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INTRODUCTION

Sebaceous cysts, also known as epidermoid cysts, are benign cysts that form beneath the skin. These cysts are frequently filled with a thick, yellowish substance made up of keratin, a protein found in the skin's structure. Sebaceous cysts can appear anywhere on the

body, but they are most commonly found on the face, neck, and trunk¹⁻². Sebaceous cysts develop from the skin's sebaceous glands, which are oil-producing glands. They form when the duct of the hair follicle becomes blocked, preventing the normal flow of sebum (skin oils) and causing keratin accumulation.

Sebaceous cysts usually appear as round or oval lumps beneath the skin. They are frequently firm, smooth to the touch, and mobile. The overlying skin may be normal or have a central punctum³⁻⁴.

The skin overlying the cysts is usually smooth, and the cysts move within the subcutaneous tissue. Small pea-sized nodules to larger lumps are examples of sebaceous cysts. The cyst's size may grow over time, especially if it becomes filled with keratin and sebum⁵⁻⁶. The colour of the overlying skin is usually normal, but a central punctum or opening may be visible in some cases. This punctum may be darker than the surrounding skin at times. Sebaceous cysts are frequently described as having a doughy or rubbery texture. The cyst's contents are usually a thick, yellowish or cheesy material made up of keratin and sebum. While sebaceous cysts are usually benign and asymptomatic, they can become tender or painful if they become infected or inflamed⁷⁻⁸. Medical attention may be required in such cases for appropriate management, which may include drainage or surgical removal. If someone notices a new lump or bump beneath their skin, especially if it is changing in size or causing discomfort, they should see a healthcare professional for an accurate evaluation and diagnosis⁹⁻¹⁰.

If a sebaceous cyst is small, asymptomatic, and not causing cosmetic problems, it may not require treatment. If a cyst becomes infected, inflamed, or painful, it can be drained or surgically removed. To avoid recurrence, the cyst sac must be completely removed¹¹. Sebaceous cysts can occasionally become infected, resulting in redness, swelling, pain, and the formation of an abscess. In such cases, medical attention is required for drainage and antibiotic treatment. While sebaceous cysts are not always avoidable, maintaining good skin hygiene and avoiding skin trauma may help reduce the risk of cyst development¹².

We report a number of cases that, upon histopathological and radiological investigation, appeared to be sebaceous cysts despite clinical suspicion indicate to improve various diagnosis. The aim of our study to evaluate the sebaceous cysts on the histopathological assessment and imaging modalities to improve preoperative diagnosis.

METHODS

This study was cross sectional study. This study was carried out at a tertiary care hospital from November 2021 to October 2023. The study

included a total of patients (n=50). Age, gender, cyst location, symptoms, signs, cyst size, diagnostic radiology, serology, preoperative diagnosis, treatment, adjuvant medications, morbidity, recurrences, and follow-up time were all obtained from the patient. After analysing patient records, all cases with clinically suspected sebaceous cysts that were excised and sent for histopathological examination were included. Histopathological examination revealed that 45 patients had sebaceous cysts/epidermoid cysts, while the remaining 5 cases had different diagnoses. Details of excised lesions with a discordant diagnosis, as well as relevant details, were provided. The follow-up periods and recurrences were thus updated. The data were tabulated in tables, and the sum of the columns in the tables, as well as the means, were determined. Chi-square test and t test in SPSS 26 were used to analyse data.

RESULTS

There were 50 cases, with a mean age of 41 (range: 15-50 years) and 56% female and 44% male. All patients were from diseases location areas with sebaceous cysts, and the majority of patients with available data were from rural areas (80%) and non-rural areas (20%). The scalp (32%), cervical region (28%), lower back region (20%), and remaining cysts of leg region (20%) were the most common locations for sebaceous cysts. The size of the sebaceous cysts was greater than 2 cm in 92% of the patients and ≤ 16 cm in 8%. Pain was more common in the scalp and lower cervical region of cysts than in other locations 32% and 28%, respectively. The majority of cysts were 90% mobile in sebaceous fat tissue and 10% fixed to peripheral tissues. Diagnostic radiology was performed on 44% of the patients, with superficial ultrasound examination being the most commonly used tool. Magnetic resonance imaging (MRI) and computed tomography (CT) were also commonly used, and the cysts were multiloculated, uniloculated, or degenerated. There was significant difference between living areas, size of cysts, pain of cysts and mobile of cysts; $p < 0.001$, see Table 1.

Serologic tests for cysts were typically 99% negative. Six patients had fine needle aspiration biopsy (FNAB) for diagnosis, and none of them had allergic reactions. Before treatment, only 60% of the patients were diagnosed with sebaceous cysts. The diagnosis of soft tissue mass was given to half of the patients, with

abscess or hernia being given to the other half. Sebaceous cysts were commonly associated with non-neoplasty surgery (44%), general surgery (4%), and neoplasty surgeons (52%), show significant changes; $p < 0.001$, see Table 2. The majority of the patients were diagnosed based on histopathological findings such as edoema, proliferation, inflammation, and Pappillomatosis, as well as hyperketosis. The majority of cases were treated surgically, and spillage occurred in 10% of them without any anaphylactic reactions. There was significant changes were noted in surgical treatment; $p < 0.001$. Recurrence rate was zero after a mean follow-up of 25.5 ± 15 months at 22 months, see Table 3.

Table 1. Demographic Characteristics

Characteristics		Total number of patients N= 50
Age	15-50 years	50
Gender	Male	22(44%)
	Female	28 (56%)
Living Rural area	Yes	40(80%)
	No	10 (20%)
Surgery	Neoplastic	26(52%)
	Non-Neoplastic	22(44%)
	General	2 (4%)
Location	Scalp	16(32%)
	Cervical	14(28%)
	Lower back	10(20%)
	Leg	10(20%)
Size	>1 cm	4(8%)
	≤16cm	46(92%)
Mobility of Mass	Fixed	5(10%)
	Mobile	45(90%)
Histopathological Finding	Yes	45 (90%)
	No	5 (10%)
Radiology	Yes	22(44%)
	No	28(56%)

Table 2. Diagnosis and Treatment of Sebaceous Cyst patients

Cysts Size	Location	Suergery department	Diagnosis				P=value
			Sereology	FNAB	Histopathologic al Finding	Radiologic al assessment	
3 cm	Scalp region	Non-Neoplasty syergery	Negative	YES	Subcutaneous cyst, eosinophilic keratin	NO	0.001
4.5 cm	Cervical region	Non-Neoplasty syergery	Negative	NO	plasmacytoid dendritic	NO	0.001
6 cm	Oocipetal region	Neoplasty syergery	Negative	NO	Proliferation, edema	NO	0.001
11 cm	Lower back	Neoplasty syergery	Negative	NO	Inflammation, proliferation	US	0.001
9 cm	Scalp region	General syergery	Negative	NO	Hyperkerotosis	NO	0.001
12 cm	Cheek swelling	Neoplasty syergery	Negative	NO	Pappillomatosis, hyperketosis	NO	0.001
13 cm	Leg	General syergery	Negative	YES	Tumor in the upperdermis	US, CT, MRI	0.001
14 cm	Cheek swelling	Neoplasty syergery	Negative	NO	Biphasic tumor	US	0.001
10 cm	Leg	Neoplasty syergery	Negative	YES	Proliferation, tumor	NO	0.001
12 cm	Oocipetal region	Neoplasty syergery	Negative	NO	Pappillomatosis, tumor, hyperketosis	NO	0.001

Table 3. Outcomes of Patients after treatment

Treatment	Morbidity	Recurrence	Follow up	P=value
Incision under local anaesthesia	NO	NO	Required	0.001
Incision with supportive care	NO	NO	Required	0.001
Excision	NA	NO	Not required	0.001
Excision curative	NO	NA	Required	0.001
Excision	NA	NO	Required	0.001
Excision complete	NO	NA	Not required	0.001
Complete surgical resection	NA	NO	Required	0.001
Complete surgical resection	NO	NO	Required	0.001
Excision	NA	NO	Not required	0.001
Excision curative	NO	NO	Required	0.001

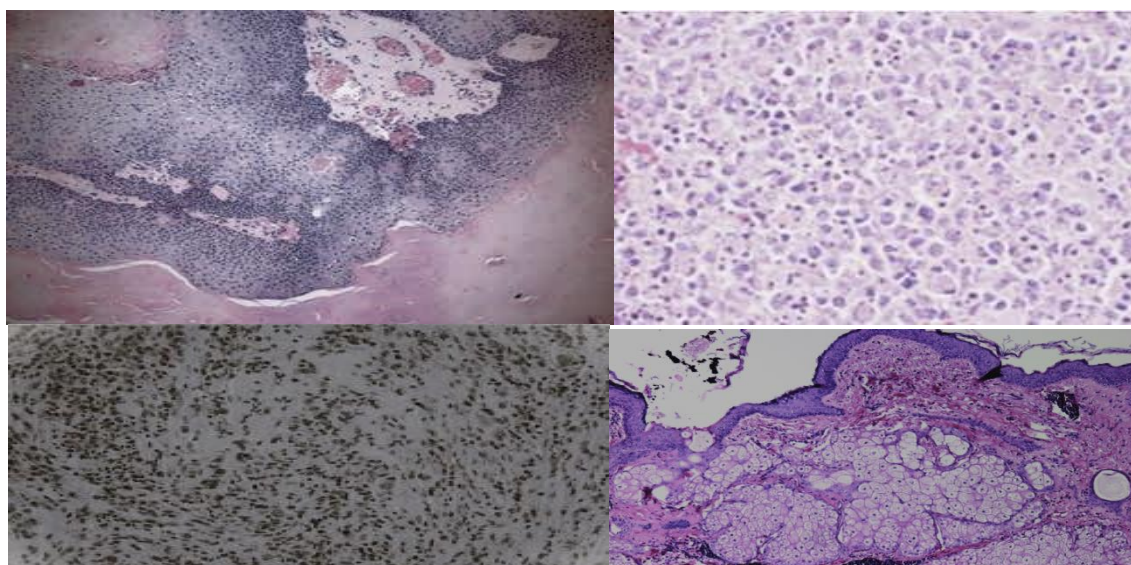


Figure 1: (a). Trichilemmal cyst (b). Histiocytic necrotizing lymphadenitis (c). Adnexal tumors (d). Cysts wall

DISCUSSION

The differential diagnosis of a subcutaneous nodule is very broad and often provides the dermatologist with a complex diagnostic challenge.

In our study, age and gender distribution of subcutaneous cysts were similar to the cysts. All patients were from endemic areas and most patients were from rural areas. Location around the scalp, cheeks, legs could be explained due to an increase in vascularization and less muscular activity in these areas. Other soft tissue tumours that can be confused with sebaceous cysts include lipomas, epidermoid cysts, and certain types of nodules. However, there is frequently discordance between clinical and tissue diagnosis. Sebaceous cysts, in addition to trichilemmal, epidermoid, mucous, ganglion, embryologic, and steatocystomas, may be mistaken for other mesenchymal,

neural, adipose, and adnexal origin lesions that can be benign or malignant. Our study included a wide range of neoplastic and non-neoplastic lesions that clinically resembled sebaceous cysts, with neoplasia being the most common¹³. According to our study, in case of different size of cysts were 3 cm, 6 cm and diagnosed 20% trichilemmal cyst, also called a pilar cyst, is a type of cyst that develops from a hair follicle. These cysts are usually benign and filled with keratin, a protein found in the skin and hair's outer layer. Trichilemmal cysts are most commonly found on the scalp, but they can occur anywhere on the body. Trichilemmal cysts form from the hair follicle's outer root sheath. They are frequently found near hair follicles and are lined with keratinizing epithelium¹⁴⁻¹⁵. The colour of the overlying skin is usually normal. The cysts contain a cheesy, white, or yellowish material made up of keratin

and dead skin cells. This material gives the cyst its distinctive appearance. Trichilemmal cysts are usually painless, but if infected, they can become tender. While trichilemmal cysts can occur at any age, they are more common in middle-aged people and may be inherited. We were agreed from the previous study¹⁶.

In our study, in case of Kikuchi-Fujimoto disease, also known as histiocytic necrotizing lymphadenitis, is a rare, benign condition that primarily affects young people, with a female predilection¹⁷. The size of cysts was 4.5 cm in cervical area to diagnose 10%, the patients may experience fever and night sweats. It's important to note that the disease is generally self-limiting, and the majority of patients recover without any specific treatment. A lymph node biopsy is frequently used to confirm the diagnosis, which reveals characteristic features such as necrosis and histiocytes but no evidence of malignancy. The disease is usually self-limiting, and the outlook is generally positive. Because specific therapies targeting the disease itself are not well-established, treatment may consist of symptom management. We were agreed from the previous study¹⁸.

According to our study, skin tumours are tumours that develop from the skin's adnexal structures, which include hair follicles, sebaceous glands, sweat glands, and other structures associated with skin appendages, cheeks 10%, legs 5% and occipital region 10%. These tumours can be benign or malignant, and they can have a variety of clinical and histological characteristics. Treatment options range from observation for benign lesions to surgical excision for malignant tumours, depending on the type and nature of the tumour¹⁹⁻²⁰.

To differentiate sebaceous cysts from other soft tissue lesions, healthcare professionals must consider a differential diagnosis and use various diagnostic tools, such as imaging studies or biopsy. In our study, the majority of patients reported slow-growing, painless, mobile masses with normal overlying skin. A radiological examination can help with diagnosis of cysts. Ultrasound is a popular imaging modality for evaluating soft tissue lesions such as sebaceous cysts and can be used 42% cases. It can aid in visualising the cyst's size, location, and internal characteristics. Ultrasound is especially useful in differentiating cystic lesions from solid masses.

CT scans and MRI were used 2% cases and not always required in simple cases, they may be recommended if there are concerns about the involvement of deeper structures or to rule out other possible causes of a lump or mass. We were agreed from the previous study²¹⁻²².

A sebaceous cyst can alert a clinician to the presence of disseminated cysts in the body. The prognosis is generally good if a cyst was diagnosed and treated with total surgical excision. There was no recurrence in 50 cases with a mean follow-up of 22 months.

CONCLUSION

A definitive diagnosis can be made through histopathological examination and imaging modalities. Sebaceous cysts are distinguished by their histological features, which include a cystic structure lined with stratified squamous epithelium and filled with keratin. Confirming these characteristics can help rule out other possibilities.

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CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin

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