Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/z3t7nz40

HISTOPATHOLOGICAL EVALUATION OF CUTANEOUS CYSTIC LESIONS CLINICALLY LABELLED AS SEBACEOUS CYSTS

Aisha Qaiser[1*], Maria Noor[2], Farah Kalsoom[3], Rabia Basharat[4], Sidra Shoukat[5], Huma Aslam[6]

[1*,5] Assistant Professor Histopathology, Department of Pathology, Rahbar Medical & Dental College, Lahore, Pakistan.
[2] Demonstrator, Department of Pathology, Rahbar Medical & Dental College, Lahore, Pakistan.
[3] Assistant Professor Histopathology, Department of Pathology, Services Institute of Medical Sciences, Lahore, Pakistan.
[4] Professor, Department of Pathology, Chaudary Pervaiz Elahi Institute of Cardiology Wazirabad, Paksitan
[6] Associate Professor Pathology, Department of Pathology, Sahiwal medical college, Pakistan.

***Correspondence Author:** *Aisha Qaise
* Assistant Professor Histopathology, Department of Pathology, Rahbar Medical & Dental College, Lahore, Punjab, Pakistan. Email**:** aishababar082@gmail.com

ABSTRACT

Introduction: A cyst is a lesion composed of cavity containing solid or semisolid material and lined by normal epithelium. The term Sebaceous Cyst is a clinical entity and misnomer used to encompass all cutaneous cystic lesions encountered in common clinical and surgical practice. It occurs spontaneously or as a result of traumatic epithelial implantation leading to psychological and cosmetic concerns.

Aims & Objectives: To evaluate and correlate histopathologically cutaneous cystic lesions labeled as sebaceous cysts alongwith their categorization as benign and malignant lesions and their association with age, gender and anatomical distribution.

Methodology: This retrospective descriptive study was conducted at Rahbar Medical and Dental College Lahore, over duration of six months (October 2024 till March 2025). Adult patients of both genders presenting to the outpatient department with clinical diagnosis of "Sebaceous cysts" on different anatomical sites of body were included and their histopathological diagnosis was analyzed.

Results & Findings: A total of 50 patients were included, comprising 27 males (54%) & 23 females (46%), with an age range 01 to 64 years (mean age: 32 +/- 01 year). Most of the clinically labeled sebaceous cystic lesions included were benign cutaneous cystic lesions and majority of them were diagnosed histopathologically as Epidermal inclusion cysts. The anatomical sites most commonly involved were chest, back and around eye.

Conclusion: Histopathology is an important diagnostic tool and acts as a gold standard in diagnosing benign cutaneous cystic lesions. It helps to alleviate misleading clinical diagnosis and rule out malignant lesions as well. It also helps to differentiate between different common benign cystic lesions like epidermoid, dermoid, trichelemmal (pilar) and other cystic lesions. It aids in exact diagnosis and treatment guidelines.

Key Words: Sebaceous cyst, Epidermoid cyst, Dermoid cyst, Trichelemmal (Pilar) Cyst.

INTRODUCTION:

Cutaneous cystic lesions are among the most frequently encountered benign conditions in dermatopathological and surgical settings, representing a wide range of developmental, inflammatory, and neoplastic processes [1,2]. Although typically non-threatening, these lesions are often a source of cosmetic disfigurement and psychological discomfort, prompting medical consultation and surgical excision [3]. Clinically, such lesions are commonly and inaccurately referred to as "sebaceous cysts" a term that is historically entrenched in clinical practice but lacks histopathological precision [4]. In reality, the majority of these lesions do not arise from sebaceous glands nor do they exhibit sebaceous differentiation, making the term a misnomer that may lead to diagnostic ambiguity [5]. Histologically, cutaneous cysts are broadly classified into true cysts and pseudocysts. True cysts are characterized by the presence of an epithelial lining, whereas pseudocysts lack such a lining and typically arise due to degeneration or inflammation [6]. Among the true epithelial cysts, subtypes are delineated based on the nature of the epithelial lining, which reflects their embryologic origin and pathogenesis [7]. Commonly encountered variants include epidermoid cysts, trichilemmal (pilar) cysts, dermoid cysts, steatocystomas, thyroglossal duct cysts, branchial cleft cysts, bronchogenic cysts, and cystic hygromas [8–10]. These entities differ significantly in their anatomical distribution, frequency across age groups and genders, and potential associations with syndromic or neoplastic conditions [11]. While most cutaneous cysts are benign, rare malignant transformations such as proliferating trichilemmal tumors or carcinomas arising within cysts have been documented, necessitating thorough histopathological evaluation [12]. Accurate classification based on histological architecture is therefore critical for appropriate patient management, prognostication, and avoidance of unnecessary concern or intervention [13]. Moreover, the frequent mislabeling of diverse cystic lesions under the non-specific term "sebaceous cyst" highlights a persistent gap between clinical impression and definitive histological diagnosis [14]. This underscores the importance of integrating histopathological assessment into routine diagnostic workflows to ensure correct categorization and optimal patient care.

The present study aims to evaluate, through histopathological examination, a series of cutaneous cystic lesions that were clinically diagnosed as sebaceous cysts. The primary objective is to characterize these lesions microscopically, delineate their histopathological subtypes, and categorize them as benign or malignant, thereby reinforcing the diagnostic accuracy and clinical relevance of histological confirmation in dermatopathology.

METHODOLOGY:

This cross-sectional descriptive study was carried out in the Department of Pathology at Rahbar Medical and Dental College, Lahore, over a period of six months, from October 2024 to March 2025. The research was initiated following the formal approval from the Institutional Ethical Review Committee to ensure adherence to ethical standards in the handling of human data and tissue specimens. The study population comprised patients whose biopsy samples were clinically labeled as sebaceous cysts. A purposive non-probability sampling method was employed to select cases that fulfilled the eligibility criteria. Laboratory request forms and corresponding histopathological reports were obtained from the departmental archives. Only cases with complete clinical details, including patient age, sex, and biopsy taken from representative anatomical sites suspected of sebaceous cysts, were considered eligible for inclusion.

Patients were excluded from the study if the clinical request forms were incomplete or if the biopsy specimens originated from non-representative anatomical sites, rendering them unsuitable for histopathological confirmation. The tissue specimens received were preserved in 10% neutral buffered formalin, processed routinely, and embedded in paraffin wax. Serial microtomy was performed to obtain 4–5 μm thick sections, which were subsequently stained with hematoxylin and eosin (H&E) using standardized histological protocols. All stained slides were independently reviewed by qualified histopathologists affiliated with the Department of Pathology at Rahbar

Medical and Dental College to establish or confirm the diagnosis and record relevant microscopic features.

Quantitative data, such as patient age, were analyzed using IBM SPSS Statistics latest version. The mean and standard deviation were calculated for continuous variables, while categorical variables, including sex and histopathological findings, were expressed as frequencies and percentages. The Pearson chi-square (χ^2) test was applied to evaluate the association between categorical variables, with a p-value of less than 0.05 considered statistically significant. Results were systematically presented using descriptive tables and graphical charts to enhance clarity and interpretability.

RESULTS & FINDINGS:

A total of 50 patients clinically diagnosed with sebaceous cysts were evaluated in this study. Following histopathological examination, significant divergence from the clinical diagnosis was observed, emphasizing the importance of microscopic confirmation. Of the 50 cases, 27 (54%) were male and 23 (46%) were female, indicating a slight male predominance with a male-to-female ratio of approximately 1.1:1. The age of patients ranged from 1 to 64 years, with a calculated mean age of 32 years (±1.0 SD), highlighting a broad age distribution across both pediatric and adult populations. Histopathological analysis revealed that the most frequently encountered lesion was the epidermal inclusion cyst, observed in 21 cases (42%). This was followed by dermoid cysts in 10 cases (20%), trichilemmal (pilar) cysts in 5 cases (10%), and spindle cell lesions in 5 cases (10%). Additionally, adnexal tumors were identified in 3 cases (6%).

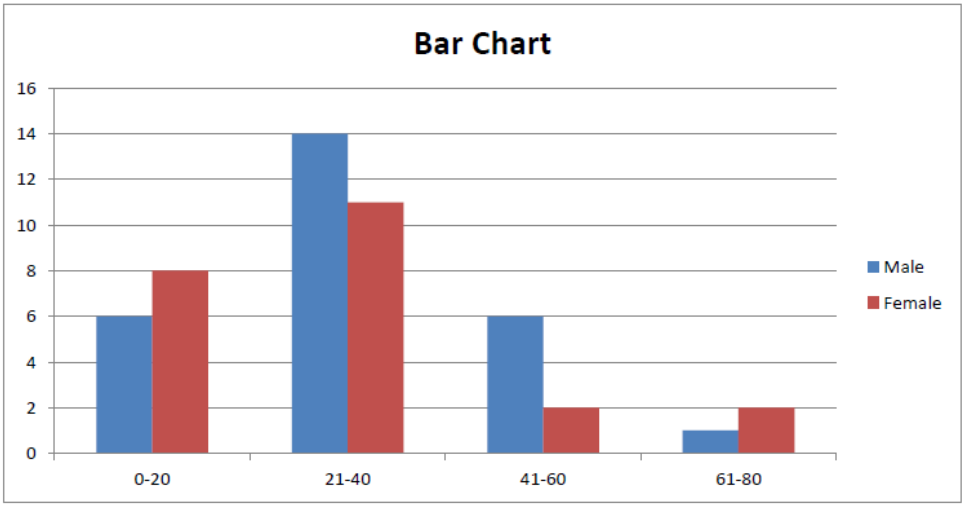

Figure 1 (A): Frequency of cutaneous cystic lesions with respect to age in males and females.

A variety of less common lesions were also detected, each constituting 2% (n = 1) of the total sample: verrucous hemangioma, cavernous lymphangioma, tenosynovial giant cell tumor, dermatofibroma, reactive lymph node, and thyroglossal duct cyst. The distribution of these lesions by sex and age demonstrated no statistically significant difference ($p > 0.05$), though certain lesions such as dermoid and pilar cysts appeared more frequently in younger female patients, whereas epidermal inclusion cysts were predominant in both sexes across a wide age spectrum. Figures 1A and 1B present the detailed frequencies and sex-specific distributions of the various histologically confirmed cutaneous cystic lesions.

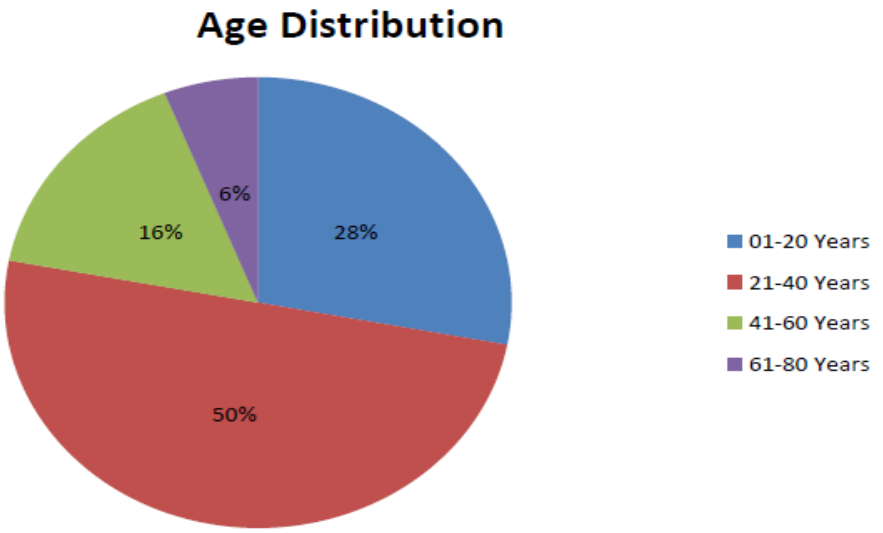

Figure 1 (B): Percentage of age distribution in cutaneous cystic lesion.

The patients were categorized into four groups 0-20 years, 21-40, 41-60 and 61-80 years, where most of the patients belong to 21-40 years' age group.

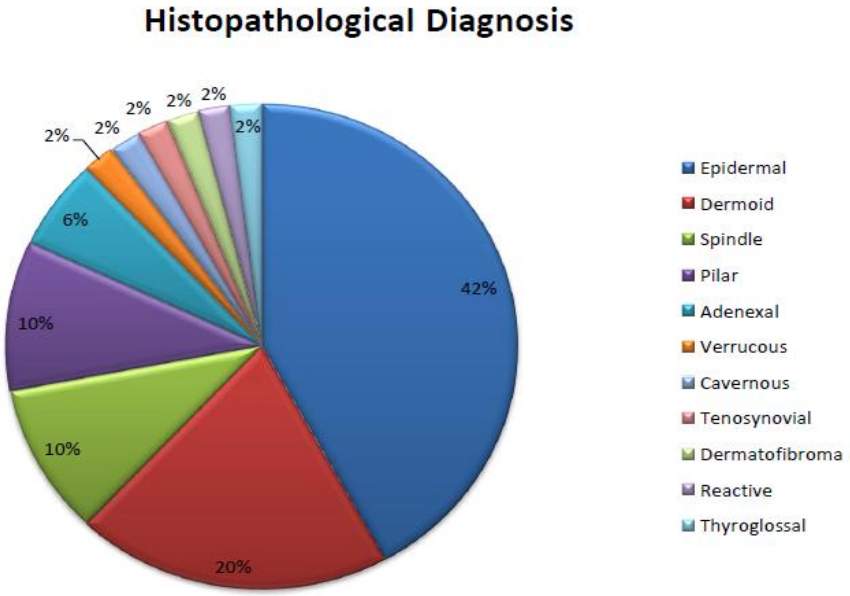

Figure 2: Percentage distribution of cases based on histopathological diagnosis of cutaneous cysts.

The most prevalent histological entity was the epidermal inclusion cyst, comprising 42.0% (n = 21) of the total cases. Notably, there was a male preponderance within this category, with 71.4% of the cases occurring in males. Dermoid cysts were the second most common lesion (20.0%, n = 10), demonstrating an equal distribution among male and female patients. Trichilemmal (pilar) cysts and spindle cell lesions accounted for 10.0% each (n = 5), with a higher male predominance observed in both types.

Table 1. Histopathological Classification of Lesions by Gender (n = 50)

Histopathological Diagnosis	Male, n (%)	Female, n (%)	Total, n (%)
Epidermal inclusion cyst	15 (71.4%)	6 (28.6%)	21 (42.0%)
Dermoid cyst	5 (50.0%)	5 (50.0%)	10 (20.0%)
Spindle cell lesion	3 (60.0%)	2 (40.0%)	5 (10.0%)
Trichilemmal (pilar) cyst	4 (80.0%)	1 (20.0%)	5 (10.0%)

Adnexal tumor	1 (33.3%)	2 (66.7%)	3 (6.0%)
Verrucous hemangioma	0	1 (100.0%)	1 (2.0%)
Cavernous lymphangioma	1 (100.0%)	0	1 (2.0%)
Tenosynovial giant cell tumor	1 (100.0%)	0	1 (2.0%)
Dermatofibroma	0	1 (100.0%)	1 (2.0%)
Reactive lymph node	0	1 (100.0%)	1 (2.0%)
Thyroglossal duct cyst	0	1 (100.0%)	1 (2.0%)
Total	**30 (60.0%)**	**20 (40.0%)**	**50 (100%)**

Less frequent lesions included adnexal tumors (6.0%, n = 3), which showed a female predominance (66.7%), and rare entities such as verrucous hemangioma, cavernous lymphangioma, tenosynovial giant cell tumor, dermatofibroma, reactive lymph node, and thyroglossal duct cyst each comprising only 2.0% (n = 1) of the cohort. These rare lesions exhibited a predominance in female patients except for the tenosynovial giant cell tumor and cavernous lymphangioma, both occurring exclusively in males. Overall, the male-to-female ratio across all cases was 1.5:1 (30 males vs. 20 females), with the majority of cystic lesions presenting in adults, although the age range spanned from 1 to 64 years, with a mean age of 32 ± 1 years. No statistically significant gender-based differences were observed in lesion type distribution ($p > 0.05$), although certain patterns such as a higher frequency of epidermal inclusion cysts and pilar cysts in males were noteworthy.

Table 2. Anatomical Distribution of Histopathologically Diagnosed Cutaneous Cystic Lesions (n = 50)

Histopathological Diagnosis	Chest	Back	Eye	Scalp	Neck	Upper Limb	Thigh	Ear	Shoulder	Hand	Cheek	Scrotal Area	Total
Epidermal inclusion cyst	3	6	3	4	1	1	0	1	1	0	1	0	21
Dermoid cyst	1	0	4	1	1	0	0	1	1	0	0	1	10
Spindle cell lesion	2	0	0	0	1	0	1	0	0	0	1	0	5
Trichilemmal (pilar) cyst	0	0	0	2	0	3	0	0	0	0	0	0	5
Adnexal tumor	0	0	0	0	0	2	0	0	0	0	0	1	3
Verrucous hemangioma	0	0	0	0	0	1	0	0	0	0	0	0	1
Cavernous lymphangioma	0	0	0	0	1	0	0	0	0	0	0	0	1
Tenosynovial giant cell tumor	0	0	0	0	0	0	0	0	0	1	0	0	1
Dermatofibroma	0	0	0	0	0	1	0	0	0	0	0	0	1

Reactive lymph node	0	0	0	0	1	0	0	0	0	0	0	0	1
Thyroglossal cyst	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	6	6	7	7	6	6	3	2	2	2	2	1	50

Analysis of the anatomical distribution revealed that cutaneous cystic lesions exhibited a wide dispersion across various body regions, with the eye (n = 7, 14%)**,** scalp (n = 7, 14%)**,** chest (n = 6, 12%)**,** back (n = 6, 12%)**,** neck (n = 6, 12%), and upper limbs (n = 6, 12%) being the most commonly affected sites. Less commonly involved regions included the thigh (n = 3, 6%)**,** ear, shoulder, hand, and cheek (each n = 2, 4%), and the scrotal area (n = 1, 2%). The epidermal inclusion cyst demonstrated the most widespread anatomical involvement, with notable predilection for the back, chest, scalp, and eye**.** Dermoid cysts predominantly involved the eye, followed by scattered involvement of other facial and midline regions such as the neck and scrotal area, consistent with their embryological origin. Trichilemmal (pilar) cysts were largely restricted to the scalp and upper limbs, aligning with the known follicular origin of these lesions. Rare lesions, including adnexal tumors**,** vascular malformations (e.g., verrucous hemangioma, cavernous lymphangioma), and reactive or neoplastic soft tissue tumors (e.g., tenosynovial giant cell tumor, dermatofibroma), exhibited isolated distribution patterns, typically localized to upper limbs or midline anatomical zones.

Table 3: Epidemiological Distribution of Histologically Diagnosed Cutaneous Cystic Lesions (n=50)

Histopathological Diagnosis	Male n (%)	Female n (%)	Age Range (Years)	Most Common Location (%)	Category
Epidermal inclusion cyst (n=21)	15 (71.4%)	06 (28.6%)	21–40	Back – 6 (28.6%)	**Benign**
Dermoid cyst (n=10)	05 (50%)	05 (50%)	0–20	Eye – 4 (40%)	**Benign**
Trichelemmal (Pilar) cyst (n=5)	04 (80%)	01 (20%)	21–40	Upper limb – 3 (60%)	**Benign**
Spindle cell lesion (n=5)	03 (60%)	02 (40%)	21–40	Chest – 2 (40%)	**Benign**
Adenexal tumor (n=3)	01 (33.3%)	02 (66.7%)	21–40	Upper limb – 2 (66.7%)	**Benign**
Verrucous hemangioma (n=1)	00 (0%)	01 (100%)	21–40	Thigh – 1 (100%)	**Benign**
Cavernous lymphangioma (n=1)	01 (100%)	00 (0%)	41–60	Neck – 1 (100%)	**Benign**
Dermatofibroma (n=1)	00 (0%)	01 (100%)	0–20	Thigh – 1 (100%)	**Benign**
Tenosynovial giant cell tumor (n=1)	01 (100%)	00 (0%)	60–80	Hand – 1 (100%)	**Benign**
Reactive lymph node (n=1)	00 (0%)	01 (100%)	0–20	Neck – 1 (100%)	**Benign**
Thyroglossal cyst (n=1)	00 (0%)	01 (100%)	0–20	Neck – 1 (100%)	**Benign**

This table presents the epidemiological characteristics of 50 histologically confirmed cases of cutaneous cystic lesions. The epidermal inclusion cyst was the most prevalent lesion, accounting for 42% (n=21) of total cases, with a notable male predominance (71.4%) and frequent localization to the back**.** Dermoid cysts followed with equal male-to-female distribution and predominant occurrence in pediatric and adolescent age groups (0–20 years), with the **eye** as the most frequent anatomical site. Among the less frequent lesions, trichelemmal (pilar) cysts were largely observed in males aged 21–40 years and showed a predilection for the upper limbs**.** Spindle cell lesions were also more common in males and often located on the chest**.** All tumors reported in this study were benign, including rare entities such as verrucous hemangioma, cavernous lymphangioma,

tenosynovial giant cell tumor, and thyroglossal cyst, indicating a non-aggressive clinical course in the majority of cases. Interestingly, some uncommon lesions demonstrated a strict female predominance, such as dermatofibroma and thyroglossal cysts, suggesting possible sex-based pathophysiological differences. No malignant lesions were identified during the study period, reinforcing the benign nature of most cutaneous cystic pathologies.

DISCUSSION

Cutaneous cystic lesions are frequently encountered benign pathologies presenting as subcutaneous nodules. While often clinically labeled as "sebaceous cysts," this terminology is a misnomer and lacks histopathological precision [15]. These lesions, although typically non-neoplastic, may become symptomatic due to infection, rupture, or secondary changes, necessitating excision and further pathological evaluation. The current study aimed to histologically characterize cutaneous cysts initially diagnosed clinically as sebaceous cysts, thereby underscoring the diagnostic value of histopathological analysis. The most prevalent lesion in this study was the epidermal inclusion cyst, accounting for 42% of cases. This finding aligns with existing literature that identifies it as the most common cutaneous cystic lesion [16,17]. These cysts were predominantly observed in males (71.4%) within the 21–40-year age group, with the back being the most frequent anatomical site (61.9%). Histologically, they are characterized by a stratified squamous epithelial lining with a well-formed granular layer and a keratinous cavity [18]. The second most frequent lesion was the dermoid cyst (20%), primarily affecting individuals aged 0–20 years, with an equal sex distribution. These cysts were commonly located around the periorbital area, consistent with developmental origin patterns [19]. Microscopically, they are lined by stratified squamous epithelium and contain adnexal structures such as sebaceous glands and hair follicles [20]. Pilar (trichelemmal) cysts constituted 10% of cases, predominantly occurring in males aged 21–40 years. The upper limb was the most commonly involved site, diverging from prior studies that often associate these cysts with the scalp [21]. Histologically, they are lined by squamous epithelium lacking a granular layer, and their lumen contains dense, eosinophilic keratin [22]. Spindle cell lesions, also comprising 10% of the sample, included benign mesenchymal tumors such as leiomyomas and neurofibromas. These were more common in males and typically involved the chest. Histologically, they demonstrated bundles of spindle-shaped cells with bland nuclear features, arranged in fascicles, whorls, or sheets hallmarks of their respective histotypes [23,24]. Adnexal tumors (6%) were observed mostly in females and were predominantly located on the upper limbs. These included eccrine and apocrine tumors such as hidradenomas, poromas, and syringomas. Each of these lesions demonstrated characteristic architectural and cytological features as per their lineage. For example, hidradenomas presented as well-circumscribed dermal nodules without epidermal connection, whereas poromas extended into the dermis as broad epithelial strands originating from the epidermis [25,26]. Rare lesions included verrucous hemangioma (2%), cavernous lymphangioma (2%), and tenosynovial giant cell tumor (2%). These lesions were confined to isolated anatomical locations and showed specific age and gender distributions. Verrucous hemangioma appeared in the thigh of a young female and was histologically defined by capillary proliferation beneath a hyperkeratotic epidermis [27]. Cavernous lymphangioma, affecting the neck in a middle-aged male, was composed of dilated lymphatic channels and surrounding lymphoid aggregates [28]. Other uncommon entities such as dermatofibroma, reactive lymph node hyperplasia, and thyroglossal duct cysts were also encountered. Dermatofibroma presented in a young female with a lesion on the thigh and exhibited fibroblastic and histiocytic proliferation within the dermis [29]. Reactive lymphadenopathy and thyroglossal cysts, although rarely confused clinically with sebaceous cysts, were included due to their cystic presentation. Both were benign and demonstrated classical histological architecture. Importantly, all lesions in this study were histologically benign, emphasizing the overwhelmingly non-neoplastic nature of clinically diagnosed "sebaceous cysts." This finding supports prior research that stresses the benign etiology of most superficial cystic lesions but also highlights the risk of clinical misclassification [30].

Conclusion

The study confirms that the majority of lesions clinically labeled as sebaceous cysts are histopathologically diagnosed as benign cutaneous cystic lesions, predominantly epidermal inclusion cysts. While these lesions are largely innocuous, accurate histopathological examination remains essential for appropriate categorization, especially in distinguishing benign entities from those that may mimic malignancy or require different therapeutic strategies. Histopathology continues to be the gold standard in the definitive diagnosis, offering critical insights into tissue architecture, guiding clinical decision-making, and avoiding misdiagnosis

Conflict of Interest: The authors declare no conflict of interest related to this study.

References

1. Alsaad KO, Obaidat NA, Ghazarian D. Skin adnexal neoplasms–part 1: an approach to tumours of the pilosebaceous unit. J Clin Pathol. 2007;60(2):129–44.
2. Weedon D. Weedon's Skin Pathology. 5th ed. Elsevier; 2020.
3. Silverman RA, Grossman ME. Cosmetic and psychological concerns of benign skin tumors. J Am Acad Dermatol. 2003;48(4):S51–3.
4. Rosai J. Rosai and Ackerman’s Surgical Pathology. 11th ed. Elsevier; 2018.
5. Calonje JE, Brenn T, Lazar A, McKee PH. McKee's Pathology of the Skin. 5th ed. Elsevier; 2019.
6. Lever WF, Schaumburg-Lever G. Histopathology of the Skin. 10th ed. Lippincott Williams & Wilkins; 2005.
7. Elder DE, Elenitsas R, Johnson BL Jr, Murphy GF, Xu X. Lever's Histopathology of the Skin. 11th ed. Wolters Kluwer; 2015.
8. Zuber TJ. Minimal excision technique for epidermoid (sebaceous) cysts. Am Fam Physician. 2002;65(7):1409–12.
9. Ioannidis O, Lavrentieva A, Botsios D. Dermoid cysts: A retrospective study of 75 cases. Trans R Soc Trop Med Hyg. 2013;107(4):234–6.
10. Thomas VD, Swanson NA, Lee KK. Benign epithelial tumors, hamartomas, and hyperplasias. In: Bolognia JL, Jorizzo JL, Rapini RP, editors. Dermatology. 2nd ed. Elsevier; 2008. p. 1753–67.
11. Banerjee SS, Eyden BP. Diagnostic problems and pitfalls in cutaneous cystic lesions. Diagn Histopathol. 2008;14(2):76–85.
12. Takata M, Regezi JA, Shibata S, Shiboski CH, Silverman S Jr. Proliferating trichilemmal tumors: a study of seven cases with review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2001;91(5):505–12.
13. Rapini RP. Practical Dermatopathology. 2nd ed. Elsevier; 2012.
14. Grosshans E. Benign cystic skin lesions. Clin Dermatol. 1997;15(1):23–34.
15. Zuber TJ. Epidermoid cysts: clinical presentation and surgical treatment. Am Fam Physician. 2002;65(7):1409–14.
16. Habif TP. Clinical Dermatology: A Color Guide to Diagnosis and Therapy. 6th ed. Elsevier; 2016.
17. Sanghvi D, Iyer S, Kulkarni S. Dermoid cysts in head and neck region: imaging findings. Indian J Radiol Imaging. 2014;24(3):247–52.
18. Weedon D. Skin Pathology. 4th ed. Churchill Livingstone Elsevier; 2015.
19. James WD, Elston DM, Treat JR, Rosenbach MA, Neuhaus IM. Andrews’ Diseases of the Skin: Clinical Dermatology. 13th ed. Elsevier; 2019.
20. Elder DE, Elenitsas R, Johnson B, Murphy GF. Lever’s Histopathology of the Skin. 11th ed. Lippincott Williams & Wilkins; 2014.
21. Linos K, Mooney KL. Cutaneous soft tissue tumors with spindle cell features. Arch Pathol Lab Med. 2018;142(7):826–36.
22. Calonje JE, Brenn T, Lazar A, McKee PH. McKee’s Pathology of the Skin with Clinical

Correlations. 5th ed. Elsevier; 2019.
23. Kazakov DV, Michal M, Kutzner H. Cutaneous adnexal tumors. Adv Anat Pathol. 2011;18(4):227–49.
24. LeBoit PE, Burg G, Weedon D, Sarasin A. World Health Organization Classification of Tumours: Pathology and Genetics of Skin Tumours. IARC Press; 2006.
25. Ghosh SK, Bandyopadhyay D. Verrucous hemangioma: a clinicopathologic study. Indian J Dermatol. 2005;50(3):180–2.
26. Ha JY, Jung SN, Lee HK. Cavernous lymphangioma of the head and neck: review of clinical presentation and management. Arch Craniofac Surg. 2018;19(1):20–4.
27. Cerroni L. Benign fibrous histiocytoma (dermatofibroma). J Cutan Pathol. 2006;33 Suppl 1:48–58.
28. Bajaj P, Wadhwa N, Kapila K. Fine-needle aspiration cytology of benign skin adnexal tumors. Diagn Cytopathol. 2000;23(1):31–5.
29. Elston DM, Ferringer T, Ko CJ, et al. Dermatopathology. 3rd ed. Elsevier; 2018.
30. Mills SE, Greenson JK, Hornick JL, Longnecker DS, Reuter VE. Sternberg's Diagnostic Surgical Pathology. 6th ed. Wolters Kluwer; 2015.