

Uncharted Territory: Sebaceous Glands Found in Esophagus

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Abstract

Case Report

Esophageal ectopic sebaceous glands (EESG) represent an exceptionally rare, benign developmental anomaly or metaplastic phenomenon. Since sebaceous glands are embryologically derived from ectoderm and typically reside in the skin pilosebaceous unit, their presence in the endoderm-derived esophagus is highly unusual. This abstract aims to delineate the clinical presentation, endoscopic characteristics, histopathological hallmarks, and diagnostic differentials of EESG to prevent clinical misdiagnosis.

Keywords: Ectopic sebaceous glands, Esophagus.

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INTRODUCTION

Ectopic sebaceous glands (ESGs)-also referred to as sebaceous gland heterotopia or metaplasia – in the esophagus are an extremely rare, benign finding characterized by the presence of histologically normal sebaceous structures within the esophageal mucosa. While sebaceous glands are ubiquitous components of dermal layer of the skin, their presence within the gastrointestinal tract represents a significant anatomical anomaly because the esophagus is an organ of endodermal origin. First described in an autopsy series by De La Pava and Pickren in 1962, the clinical detection of esophageal ESGs in living patients has slightly increased due to the modern widespread use of high-resolution upper gastrointestinal endoscopy. Nonetheless, the overall incidence remains exceptionally low, estimated between 0.004% and 0.05% of endoscopic examinations.[1]

Endoscopically, esophageal ESGs typically present as discrete, single or multiple, yellowish- white plaques or papules ranging from 1 to 5mm in diameter, predominantly localized to the middle and lower thirds of the esophagus. Clinically, these lesions are entirely asymptomatic and are almost invariably discovered as incidental findings during endoscopies performed for unrelated complaints, such as gastroesophageal reflux disease (GERD) or routine screening [2].

The exact pathogenesis of ectopic sebaceous glands in the esophagus remains a subject of ongoing

clinical debate. The two primary hypotheses suggest either a congenital developmental error or an acquired metaplastic process triggered by chronic mucosal irritation, such as acid reflux or chronic esophagitis. Regardless of their origin, esophageal ESGs carry an excellent prognosis; they possess no malignant potential, do not correlate with systemic syndromes, and require no therapeutic intervention or long-term surveillance [3].

The primary clinical challenge of esophageal ESGs lies in their macroscopic similarity to other esophageal pathologies, including candida esophagitis, xanthomas, carcinoid tumors, glycogen acanthosis, and early stage of squamous cell carcinoma. Consequently, histopathological confirmation via endoscopic biopsy is vital to exclude these differentials and prevent unnecessary clinical anxiety or overly aggressive medical overmanagement[4]. We report a case of an incidental finding of ectopic sebaceous glands in the esophagus of a 45-year-old male patient. This case is presented to highlight the endoscopic features of this rare entity, discuss its histopathological characteristics.

CASE REPORT

A 45 years male patient was presented with bloated abdomen with multiple retchings and vomitings since 1 month. endoscopic ultrasound studies revealed whitish and raised plaques of size 4 to 5 mm seen at entire length of esophagus with clinical suspicion of hyperkeratosis vs leukoplakia of esophagus.



Figure:1: Endoscopy: diffuse whitish multiple non scrapable plaques involving entire length of esophagus

Gross and microscopy:

received multiple soft tissue bits altogether measuring 5x5mm. microscopically section studied show tissue lined by markedly hyperplastic stratified squamous epithelium with subepithelial tissue showing sebaceous glands composed of cells having abundant

clear cytoplasm and round nuclei. these sebaceous glands are arranged in lobules separated by inflammatory cell collections and strips of squamous epithelium. At one focus the duct of the sebaceous gland is attached to the squamous epithelium.

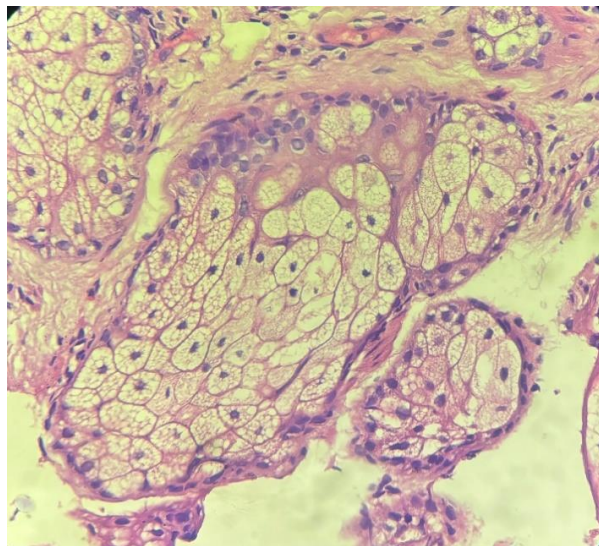


Figure 2:H&E: 40x showing multiple lobulated sebaceous glands

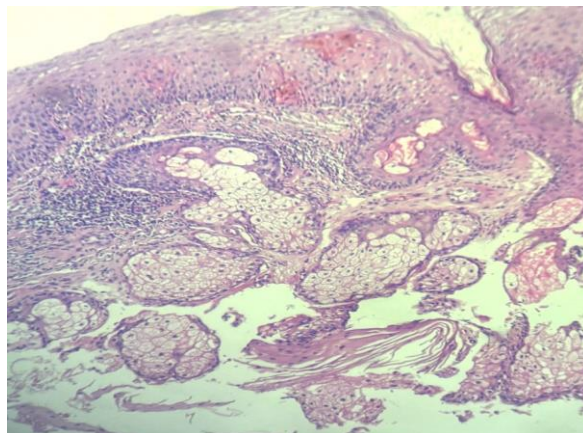


Figure:3: H & E:10x showing multiple lobulate sebaceous glands without hair follicles in lamina propria

DISCUSSION

Ectopic sebaceous glands (ESGs) are a well-documented entity in various non-cutaneous organs of ectodermal origin, such as the oral mucosa (Fordyce granules) and the female genitalia. However, their occurrence in the gastrointestinal tract—particularly the esophagus—is exceptionally rare. Since the first histological description by De La Pava and Pickren in 1962 during an autopsy series [1], fewer than 100 cases have been reported in the global literature [5]. While the exact prevalence remains difficult to quantify due to its typically asymptomatic nature, large-scale endoscopic screenings estimate the detection rate to be approximately 0.105‰ (around 0.01%) in the general population [5,6].

The precise etiopathogenesis of esophageal ESGs remains a subject of ongoing debate, with two principal hypotheses proposed: congenital anomaly versus acquired metaplasia. The congenital theory posits that these glands arise from the misplacement or ectopia of dermal analogues during embryonic development, specifically during the differentiation of the stomodeum and the upper foregut. However, the overwhelming majority of cases are diagnosed in middle-aged or elderly patients, with a distinct male-to-female predominance of roughly 2:1 [5,6]. This delayed presentation and demographic skew heavily favor the acquired metaplastic theory [4]. According to this framework, chronic mucosal injury from stimuli such as gastroesophageal reflux disease (GERD), smoking, or regular alcohol consumption triggers the multipotent basal stem cells of the esophageal epithelium to undergo sebaceous metaplasia [4,5]. The male predominance is further hypothesized to link to androgenic hormonal stimulation, as sebaceous differentiation is highly sensitive to circulating androgens [2]. This is strongly supported by recent tissue studies demonstrating that pubertal or adult androgens drive the aberrant differentiation of basal stem cells toward a sebaceous lineage [4,5].

Endoscopically, esophageal ESGs present with highly characteristic, albeit non-specific, features. They typically manifest as small (1 to 5 mm), slightly elevated, discrete or confluent yellowish-white plaques or nodules. While they can present as a solitary lesion, multiple widespread plaques numbering in the dozens are frequently observed, primarily localized to the middle and lower thirds of the esophagus [3,6]. High-resolution or magnifying endoscopy may occasionally reveal a central punctum representing the excretory duct opening, notably lacking any associated hair follicles [7].

Because these endoscopic findings strongly mimic other common esophageal pathologies, histopathological evaluation is mandatory to establish a definitive diagnosis. The primary differential diagnoses include *Esophageal candidiasis*, which presents as easily scrapable white plaques; *glycogenic acanthosis*,

characterized by pale, elevated mucosal folds rich in glycogen; *xanthomas*, which are aggregates of lipid-laden macrophages; and rarer entities like *granular cell tumors* or *papillomas* [8].

Microscopically, the diagnosis is confirmed by the presence of mature, lobulated sebaceous glands situated within the lamina propria, immediately beneath a normal, non-keratinized stratified squamous epithelium [2]. These glands consist of distinct nests of large, polygonal sebocytes featuring characteristic clear, foamy, microvesicular cytoplasm and small, centrally located nuclei [1,9]. Immunohistochemical staining serves as a valuable diagnostic adjunct in ambiguous cases, as these ectopic sebocytes strongly express androgen receptors (AR) in 100% of analyzed tissues, confirming their true sebaceous lineage [3,9].

From a clinical management perspective, esophageal ESGs are entirely benign lesions with absolutely no documented potential for malignant transformation, dysplasia, or cellular atypia [3]. They are virtually always incidental findings discovered during an esophagogastroduodenoscopy (EGD) indicated for unrelated gastrointestinal complaints. Any presenting symptoms, such as heartburn, dysphagia, or epigastric pain, are typically attributable to concurrent pathologies like GERD or hiatal hernias rather than the ectopic glands themselves [9]. Consequently, once a histopathological diagnosis is securely established, no aggressive therapeutic interventions, surgical excision, or specialized long-term endoscopic surveillance protocols are required [5,6]. Treatment should be directed exclusively at managing any co-existing acid reflux or dyspeptic symptoms with standard medical therapies, such as proton pump inhibitors (PPIs) [9].

CONCLUSION

while ectopic sebaceous glands of the esophagus are an exceedingly rare endoscopic curiosity, awareness of this entity is critical for gastroenterologists and pathologists alike. Recognizing its characteristic endoscopic and histological profiles prevents misdiagnosis, avoids unnecessary and anxiety-inducing surveillance for the patient, and ensures that clinical management remains appropriately conservative.

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