

Esophageal Gland Duct Adenoma

Yoonjung Kim · Yang-Soon Park
Jei So Bang¹ · Ji Yeon Kim²
Young-Hyeh Ko² · Cheol Keun Park²
Kyoung-Mee Kim²

Departments of Pathology and ¹Internal Medicine, Seoul Veterans Hospital; ²Department of Pathology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

Received: May 7, 2010
Accepted: June 14, 2010

Corresponding Author

Kyoung-Mee Kim, M.D.
Department of Pathology, Samsung Medical Center,
Sungkyunkwan University School of Medicine, 50
Irwon-dong, Gangnam-gu, Seoul 135-710, Korea
Tel: +82-2-3410-2800
Fax: +82-2-3410-6396
E-mail: kkmkys@skku.edu

Benign ductal or glandular neoplasms of the esophagus unrelated to Barrett esophagus are extremely rare. Only 9 cases have been reported in the English language literature. We now report a case of esophageal gland duct adenoma incidentally found in a 73-year-old man. A 0.8 cm-sized, polypoid submucosal lesion in the distal esophagus was removed. Histologically, the lesion was well circumscribed and consisted of several ducts or cysts with focal papillary configurations. Interstitial lymphocytic infiltration with germinal centers was also observed. The lining cells of ducts or cysts were composed of two layers: an inner intensely eosinophilic luminal duct cell layer and an outer myoepithelial cell layer that was accentuated by alpha-smooth muscle actin. There was no significant nuclear atypia or mitosis. Mucin production was occasionally observed in a few goblet cells. To the best of our knowledge, this is the first case of benign ductal or glandular neoplasm of the esophagus among Koreans.

Key Words: Esophagus; Adenoma; Duct

Most adenomas of the esophagus are mucin-producing lesions in the setting of Barrett esophagus, or originate in Barrett's metaplastic epithelium, or are composed of cells with gastric epithelial features including parietal cells.¹ Benign ductal or glandular neoplasms not associated with Barrett esophagus are very rare.² There have been several reports of esophageal adenoma developing in the submucosa without Barrett epithelium.³ On the basis of microscopic features, esophageal adenomas have been described as serous cystadenoma, sialadenoma papilliferum, or submucosal gland duct adenoma.⁴ However, in Korea, esophageal adenoma has never been reported. Herein, we present a typical example of esophageal adenoma with unique histologic features indicating esophageal gland duct origin.

CASE REPORT

A 73-year-old healthy man visited our hospital due to an incidentally found esophageal polypoid lesion during routine health check. Gastrofiberscopy revealed a 0.8 cm-sized, fixed, round

and polypoid submucosal mass located in the distal esophagus (Fig. 1). The patient underwent endoscopic snare polypectomy. Histologically, the submucosal lesion was well circumscribed and consisted of several ducts or cysts with focal papillary configurations (Fig. 2). Interstitial lymphocytic infiltration with germinal center formation was also observed. Squamous epithelium overlying the lesion was unremarkable with no pathologic evidences of Barrett esophagus. The lining cells of ducts or cysts were composed of two layers: an inner luminal duct cell layer and an outer myoepithelial cell layer (Fig. 3). The cytoplasm of the inner duct cells was granular and intensely eosinophilic, indicating oncocytic differentiation. No mucin production was observed in most of tumor cells, however, focally a few goblet cells were seen. The nuclei were round to oval with prominent nucleoli. Significant nuclear atypia or mitosis was not observed. Most of myoepithelial cells were short and spindle shaped with clear to eosinophilic cytoplasm. On immunohistochemical staining, the luminal duct cells were diffusely positive for cytokeratin (CK)7, high-molecular-weight CK (HMWCK), and weakly positive for S-100 protein. CK20 was completely negative. Con-

tinuous myoepithelial cells were accentuated with alpha-smooth muscle actin (alpha-SMA) staining. The Ki-67 labeling index was very low (less than 2%). Alcian blue (pH 2.5) and periodic acid Schiff (AB-PAS) stain was performed and mucin production by tumor cells was not observed.

The postpolypectomy course was uneventful and there was no evidence of recurrence during the 12 months follow up after polypectomy.



Fig. 1. Endoscopic finding showing a 0.8 cm-sized, round, polypoid submucosal mass in the distal esophagus.

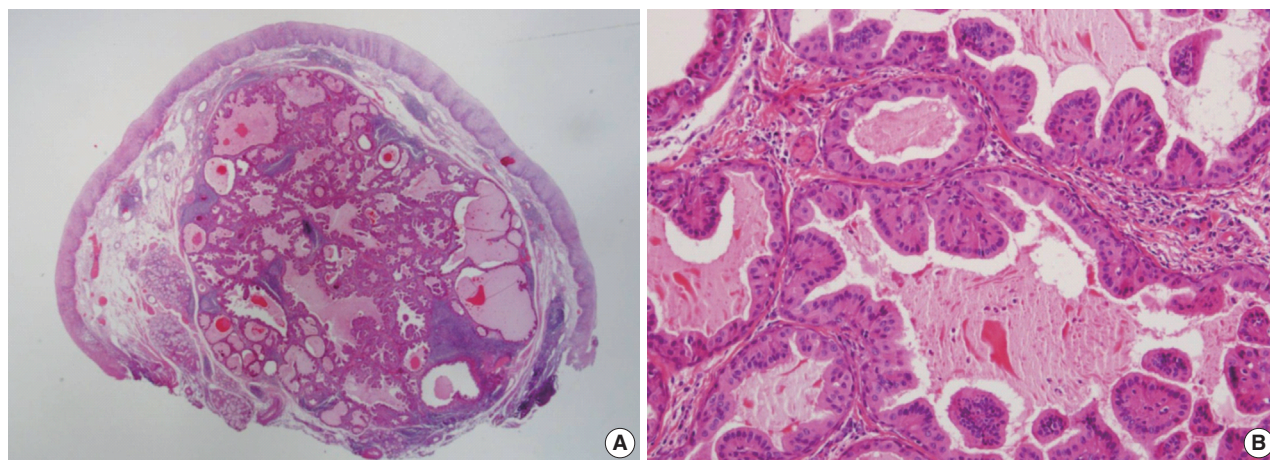


Fig. 2. Photomicrograph showing a well circumscribed submucosal lesion. The tumor is composed of several ducts or cysts with focal papillary configurations with interstitial lymphocytic infiltration. Overlying squamous epithelium is unremarkable.

DISCUSSION

Here, we describe a case of esophageal gland duct adenoma exhibiting distinctive histologic features. Only 13 cases having similar histology to the current tumor have been reported in the English literature. All the previously reported cases including our one share several distinct features; 1) a predominantly submucosal location, 2) good circumscription, 3) the presence of a mixture of tubules, cysts and papillae, two cell layers, and bland cytology with infrequent mitotic figures,¹ and 4) clinically no recurrence after complete resection. However, the proportions of the cystic and papillary components, locations within the esophagus (mid vs lower part), gross features (polypoid vs flat), and the degree of interstitial lymphoid infiltrates are variable.¹ Despite these variabilities, we consider each of these tumors to be benign based on their bland cytologic features, paucity of mitotic figures, clear circumscription and lack of aggressive clinical behavior.

A unique feature of these tumors is the double layer of eosinophilic inner lining cells without apparent cytoplasmic mucin and outer alpha-SMA-positive myoepithelial cells. In addition, the predominant subepithelial location, absence of surface component, and the presence of an interstitial lymphocytic-plasmacytic infiltrates similar to periductal lymphoid aggregates strongly support submucosal gland differentiation and these findings are characteristic of ductal in origin than secretory cells. On immunohistochemical study, HMWCK was diffusely and strongly positive for tumor cells. HMWCK was expressed only in duct cells but not in mucous cells in normal esophageal glands.⁴ Harada *et al.*⁴ reported a small numbers of tumor cells having a

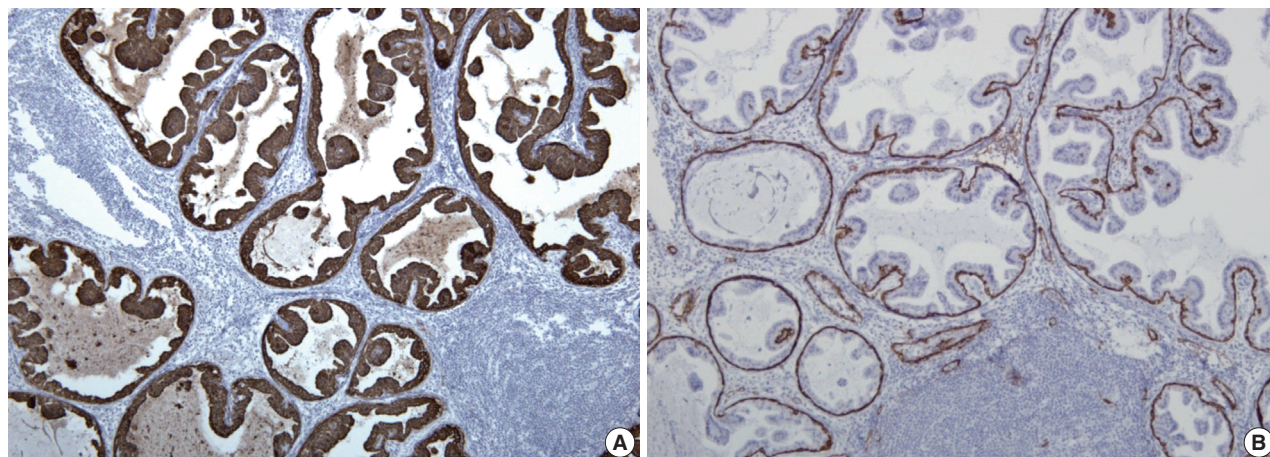


Fig. 3. The lining cells of ducts or cysts are composed of an inner luminal duct cell layer and an outer myoepithelial cell layer.

small amount of mucin in the subapical portion in AB-PAS staining, mucin 5B immunostaining, and on ultrastructural analyses. These observations suggest that these tumor cells have characteristics of terminal duct cells in the normal esophageal glands, which show a small amount of mucins in a similar fashion. In the present case, although we found a few goblet cells within the tumor, subapical mucin production was not evident. Although we failed to demonstrate subapical mucin on AB-PAS stain, histologic and immunohistochemical findings strongly support that this tumor originated from esophageal gland duct. Esophageal gland duct adenomas have been considered to be benign neoplasm and no relation to malignancy has yet been established.⁴ Some endoscopists proposed endoscopic removal of esophageal gland duct adenoma as a potential standard therapy.⁴ Hence, the most important distinction to be made on a small biopsy specimen of esophageal glandular lesions seems to be an exclusion of adenocarcinoma.¹ The presence of a basal cell layer and the absence of severe cytologic atypia and mitoses are the significant pathologic findings differentiating esophageal gland duct adenoma from adenocarcinoma.

In conclusion, we demonstrated a case of esophageal gland duct adenoma. The histologic and immunohistochemical fea-

tures support its differentiation toward the submucosal gland duct. Awareness of this disease entity might be important for pathologists when diagnosing glandular or ductal lesions of the esophagus.

REFERENCES

1. Rouse RV, Soetikno RM, Baker RJ, Barnard IC, Triadafilopoulos G, Longacre TA. Esophageal submucosal gland duct adenoma. *Am J Surg Pathol* 1995; 19: 1191-6.
2. Agawa H, Matsushita M, Kusumi F, Nishio A, Takakuwa H. Esophageal submucosal gland duct adenoma: characteristic EUS and histopathologic features. *Gastrointest Endosc* 2003; 57: 983-5.
3. Takubo K, Esaki Y, Watanabe A, Umehara M, Sasajima K. Adenoma accompanied by superficial squamous cell carcinoma of the esophagus. *Cancer* 1993; 71: 2435-8.
4. Harada O, Ota H, Katsuyama T, Hidaka E, Ishizaka K, Nakayama J. Esophageal gland duct adenoma: immunohistochemical comparison with the normal esophageal gland and ultrastructural analysis. *Am J Surg Pathol* 2007; 31: 469-75.