

## EUS-guided fine-needle biopsy of gallbladder polypoid lesions

Sung Hoon Kang, MD,<sup>1</sup> Jong Seok Joo, MD,<sup>1</sup> Seok Hyun Kim, MD, PhD,<sup>1</sup> Kyung Hee Kim, MD, PhD,<sup>2</sup> Eaum Seok Lee, MD, PhD<sup>1</sup>



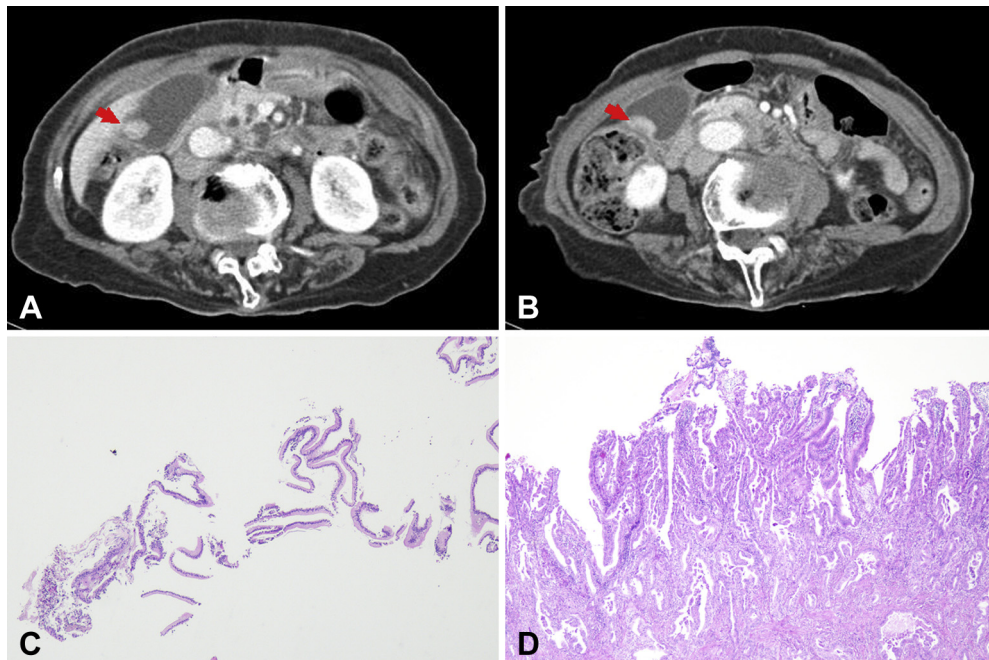
Adenomatous polyps of the gallbladder are precancerous lesions, which require preventive cholecystectomy.<sup>1</sup> Because polypoid lesions of the gallbladder cannot undergo biopsy before surgery, the requirement for excision is usually assessed from only clinical and radiologic findings. The current indications for resection of a gallbladder with polypoid lesions include size exceeding 1 cm, occurrence of lesions in old age, sessile polyps and accompanying gallstones, or symptoms such as abdominal pain.<sup>2</sup>

However, on the basis of current indications, surgery rarely reveals adenomatous polyps; most cases are cholesterol polyps.<sup>3</sup> In particular, in polyps measuring between 1 and 2 cm, the positive predictive value for neoplastic polyps is very low (23.3%).<sup>4</sup> This suggests that approximately 80% of cholecystectomy procedures are unnecessary for polyps of this size. Therefore, cumulative evidence is needed to increase the diagnostic rate or positive predictive value for adenomatous polyps. One method for attempting to

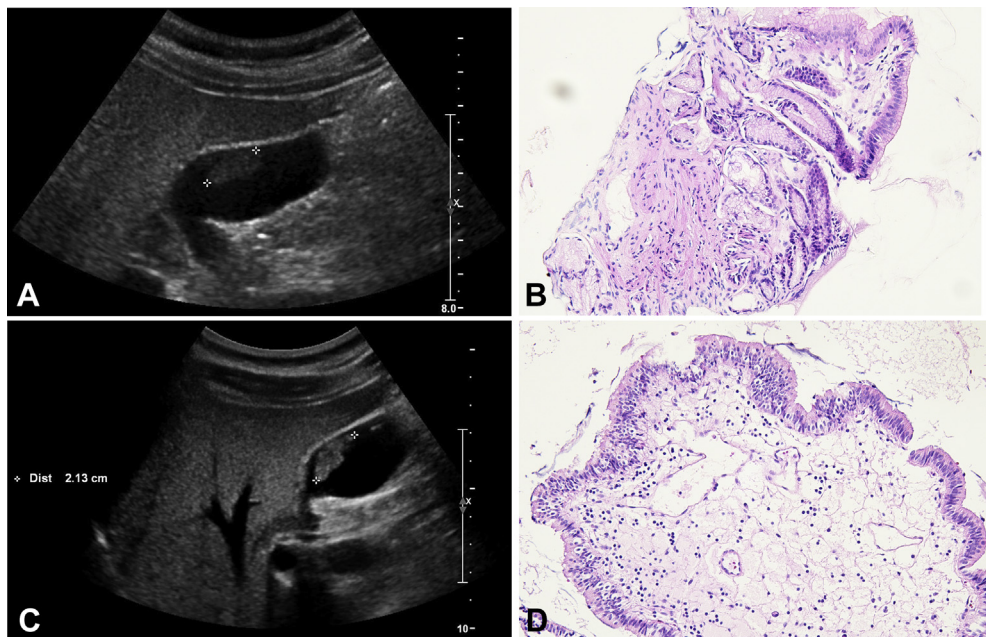
diagnose gallbladder polyps before surgery has been EUS-guided fine-needle biopsy (EUS-FNB). Case series of EUS-fine-needle aspiration (EUS-FNA) for gallbladder cancer have been reported.<sup>5,6</sup> To date, FNB has rarely been attempted for gallbladder polyps. This may be attributable to the difficulty in puncturing a noninflamed gallbladder, which has a surrounding fibrotic capsule.<sup>7</sup> Certain areas are also technically inaccessible to the needle. Vertical access to the gallbladder wall and quick advancement of the needle may allow puncturing of the wall.

Here, we report 2 cases of EUS-FNB of gallbladder polypoid lesions, successfully performed using 22-gauge needles (Acquire, Boston Scientific Corp, Marlborough, Mass, USA) (Video 1, available online at [www.VideoGIE.org](http://www.VideoGIE.org)). Written informed consent was previously obtained from the patients.

Patient 1 was an 83-year-old woman who was admitted with right-upper quadrant pain. CT of the abdomen showed 2 polypoid lesions in the gallbladder (Fig. 1A, B).



**Figure 1.** **A, B,** CT view of abdomen showing 2 polypoid lesions in the gallbladder. **C,** Histopathologic view after fine-needle biopsy showing low-grade dysplastic columnar epithelium, suggestive of a neoplastic polyp (H&E stain, orig. mag.  $\times 40$ ). **D,** Adenocarcinoma of gallbladder after extended cholecystectomy (H&E stain, orig. mag.  $\times 40$ ).



**Figure 2.** **A**, Transabdominal US view showing polypoid lesions in the gallbladder. **B**, Histopathologic view after fine-needle biopsy showing polyp lined by a single layer of columnar cells and with mucin-secreting glands without dysplastic cells (H&E stain, orig. mag.  $\times 200$ ). **C**, Transabdominal US view showing increased size of gallbladder polypoid lesions to 21 mm. **D**, Histopathologic view of cholesterol polyp after laparoscopic cholecystectomy (H&E stain, orig. mag.  $\times 200$ ).

The sizes of the lesions were 20 mm and 17 mm. Although cholecystectomy was recommended owing to the high possibility of malignancy, the patient and her family preferred to avoid surgery if possible because of her age. EUS-FNB was, therefore, performed, and histopathologic examination revealed low-grade dysplastic columnar epithelium, suggestive of a neoplastic polyp (Fig. 1C). She subsequently underwent extended cholecystectomy with partial hepatectomy. After surgery, she received a diagnosis of gallbladder cancer (Fig. 1D).

Patient 2 was a 25-year-old man who was referred for a polypoid gallbladder lesion found incidentally on transabdominal US (TAUS) (Fig. 2A). EUS showed multiple polypoid lesions of various sizes, of which the largest measured 15 mm. EUS-FNB was performed; the histopathologic findings indicated that the polyp was lined by a single layer of columnar cells and had mucin-secreting glands without dysplastic cells (Fig. 2B). We, therefore, decided to follow up the patient without surgery. After 8 months, the gallbladder polypoid lesions had increased to 21 mm on TAUS (Fig. 2C). At that time, the patient wanted to undergo surgery owing to the possibility of an adenomatous polyp. He underwent laparoscopic cholecystectomy; histopathologic examination demonstrated the lesions to be cholesterol polyps (Fig. 2D).

Polyps of increasing size are more likely to be neoplastic, and surgical resection is recommended.

However, as seen in patient 2, polyps increasing in size may be diagnosed as cholesterol polyps. Therefore, polyps found to be nonneoplastic on EUS-FNB may be followed up without surgery.

No adverse effects of EUS-FNA for gallbladder polypoid lesions have been reported.<sup>5,6</sup> However, expected adverse effects include cholecystitis, bile peritonitis, and hemorrhage. Our patients experienced no adverse effects during EUS-FNB.

In the cases described here, EUS-FNB of gallbladder polypoid lesions was safe and helpful for clinical decision making.

## DISCLOSURE

*All authors disclosed no financial relationships relevant to this publication.*

*Abbreviations: FNB, fine-needle biopsy; EUS-FNB, EUS-guided fine-needle biopsy; EUS-FNA, EUS fine-needle aspiration; TAUS, transabdominal US.*

## REFERENCES

1. Kimura W, Muto T, Esaki Y. Incidence and pathogenesis of villous tumors of the gallbladder, and their relation to cancer. *J Gastroenterol* 1994;29: 61-5.

2. Lee ES. Recent updates on the diagnosis and management of gallbladder polyps. *Korean J Pancreas Biliary Tract* 2014;19:64-70.
3. Cairns V, Neal CP, Dennison AR, et al. Risk and cost-effectiveness of surveillance followed by cholecystectomy for gallbladder polyps. *Arch Surg* 2012;147:1078-83.
4. Lee JS, Lee KT, Jung JH, et al. Factors associated with malignancy in gallbladder polyps without gallbladder stone. *Korean J Gastroenterol* 2008;52:97-105.
5. Jacobson BC, Pitman MB, Brugge WR. EUS-guided FNA for the diagnosis of gallbladder masses. *Gastrointest Endosc* 2003;57:251-4.
6. Varadarajulu S, Eloubeidi M. Endoscopic ultrasound-guided fine-needle aspiration in the evaluation of gallbladder masses. *Endoscopy* 2005;37:751-4.
7. Chantarojanasiri T, Hirooka Y, Kawashima H, et al. The role of endoscopic ultrasound in the diagnosis of gallbladder diseases. *J Med Ultrason* 2017;44:63-70.

---

Department of Internal Medicine (1); Department of Pathology (2); Chungnam National University Hospital, Daejeon, Republic of Korea.

Copyright © 2019 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.vgie.2019.12.004>

---