To the Editor: Colonic diverticulosis is a common colon disorder worldwide and is mostly observed in the right colon in Asian patients, unlike in western patients. Inverted colonic diverticula (ICD) are less common and are observed in about 0.7% of colonoscopy procedures. Because ICD often resemble colon polyps, they are difficult to distinguish by colonoscopy. Thus, bowel perforation after biopsy or endoscopic resection may be a serious complication. The colonoscopy maneuvers described to help diagnose ICD include radiating pillow sign, the use of air insufflation and water jet, and reversion of the ICD with forces. Aurora rings, most recently described as concentric pale rings surrounding the lesion, also can help to diagnose ICD without the need for maneuvers. The present report describes the cases that underwent endoscopic maneuvers by submucosal saline injection. The results of this clinical trial may help to distinguish ICD from colon polyps.

A 69-year-old woman with no significant medical history presented with intermittent abdominal pain in her right lower quadrant. She had not undergone a screening colonoscopy till then. Physical examination findings and laboratory tests were normal. Abdominal computed tomography only showed diverticula in the cecum and ascending colon. The colonoscopy revealed several diverticula and an 8-mm polypoid lesion in the ascending colon [Figure 1A]. The surface of the polypoid lesion was shiny pink mucosa resembling the surrounding normal mucosa. The Aurora rings sign seemed ambiguous. The lesion became flat with central dimpling following submucosal injection [Figure 1B].

It may be difficult to diagnose ICD because it resembles colon polyps. Thus, several diagnostic methods for ICD have been proposed. In the early literature, ICD was diagnosed by double-barium edema or pathologic findings.[1] Colonoscopy is a useful modality not only for identifying colon diverticula but also for complications. Endoscopists need to distinguish between ICD and colon polyps to prevent complications after biopsy or polypectomy.

There are several endoscopic maneuvers to help distinguish ICD from colon polyps. The radiating pillow sign consists of a central dimple with radiating folds by repeated probing with forceps.[2] Also, this can help to distinguish ICD from soft subepithelial lesions such as lipoma. The use of air insufflation and water jet attempt to revert and deform the lesion.[3, 4] In other cases, revision of the ICD with forceps can help to make the diagnosis.[1] These maneuvers are always not reliable for larger ICD. It is difficult to place the forceps in the correct position, and air insufflation may be inefficient as leakage of air into the colon. Furthermore, a negative finding from these maneuvers does not exclude the ICD.

Recently, Aurora rings have been described to help distinguish ICD from colon polyps. These concentric pale rings surrounding the lesion are enhanced with narrow-band imaging and indigo carmine dye.[5] However, Aurora ring signs do not always work, especially for smaller ICD and in cases with poor bowel preparation. Colonoscopy with standard white light may not be useful because these rings are enhanced by narrow-band imaging or indigo carmine dye.

This case describes a lesion that became flat with central dimpling after submucosal saline injection. Only the submucosa around the ICD rose and flattened or showed a central dimple following injection because the colon diverticulum is a pseudo-diverticulum that does not contain all layers of the bowel. This maneuver is reliable for both small and large ICD. However, a negative finding for this new maneuver cannot exclude ICD owing to the varying ICD shapes and locations. If the indigo carmine dye is used for submucosal saline injection, Aurora rings will also be confirmed and ICD will be better identified.
recommend submucosal saline injection with indigo carmine dye as a new colonoscopic method.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Conflicts of interest
None.

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