

CASE REPORT

## 혈액투석환자에서 십이지장벽의 이물질을 내시경으로 제거한 후 발생한 후복막 출혈

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### Retroperitoneal Hemorrhage after Endoscopic Removal of a Fish Bone Stuck in the Duodenum of a Patient Receiving Hemodialysis

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Fish bones are often ingested accidentally. Most of them passes out through the gastrointestinal tract safely, but serious complications, such as perforation, abscess, obstruction, and bleeding in the gastrointestinal tract, can occur. An ingested fish bone can be easily removed by endoscopy, and surgery is rarely required. However, there may be complications related to the endoscopic procedure including mucosal laceration, bleeding, fever, and perforation. Here, we report a case of retroperitoneal hemorrhage developed after endoscopic removal of a fish bone stuck in the duodenal wall, and then resolved spontaneously by conservative care. (*Korean J Gastroenterol* 2011;58:212-216)

**Key Words:** Retroperitoneal space; Hemorrhage; Foreign bodies; Endoscopy

#### INTRODUCTION

Although fish bones are often ingested accidentally, most of them passes through the gastrointestinal (GI) tract safely.<sup>1</sup> However, fish bones can cause serious complications, such as perforation of the esophagus, stomach and small bowel, intra-abdominal abscess, esophageal obstruction, and GI tract bleeding, and the complication rate of sharp-pointed object is high as 35%.<sup>1-4</sup> When an ingested fish bone is noted in the upper GI tract, endoscopic management has a success rate of exceeding 90%, and surgery is rarely required.<sup>5</sup> However, complications related to the endoscopic procedure occur in up to 5% of cases, which include mucosal laceration, bleeding, fever, and perforation.<sup>6</sup> Here, we report a case of

retroperitoneal hemorrhage developed after endoscopic removal of a fish bone stuck in the duodenal wall.

#### CASE REPORT

A 56-year-old man was admitted to the emergency room with melena. Eight years earlier, he had been diagnosed as having end-stage renal disease of unknown cause, and undergone regular hemodialysis at a private clinic since then. He also had a severe kyphosis with a short stature. On admission, his blood pressure was 185/90 mmHg, pulse rate was 131 beats per minute, and body temperature was 37.8°C. Blood test revealed white blood cell count of 11,800/mm<sup>3</sup>, hemoglobin of 6.9 g/dL, platelet count of 172,000/mm<sup>3</sup>, prothrombin

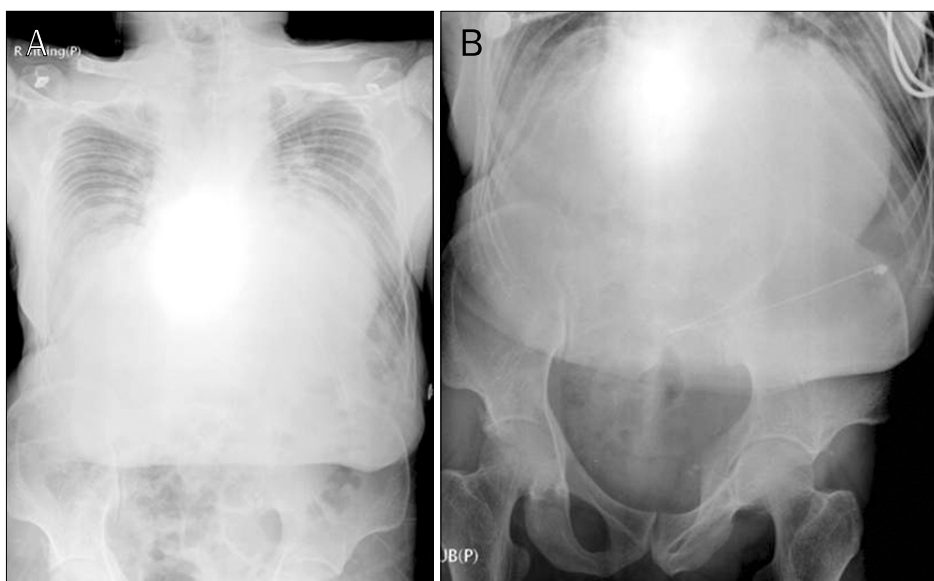
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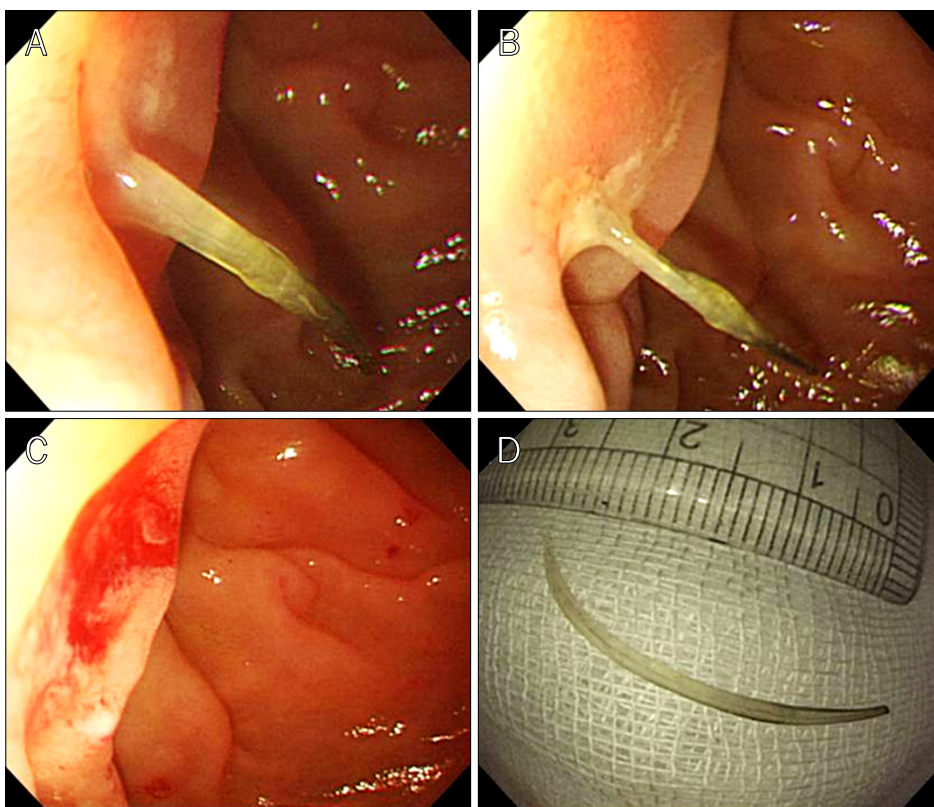
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**Fig. 1.** Plain abdominal X-ray. It revealed severe kyphosis (A) and no other abnormalities in the abdomen on admission (B).

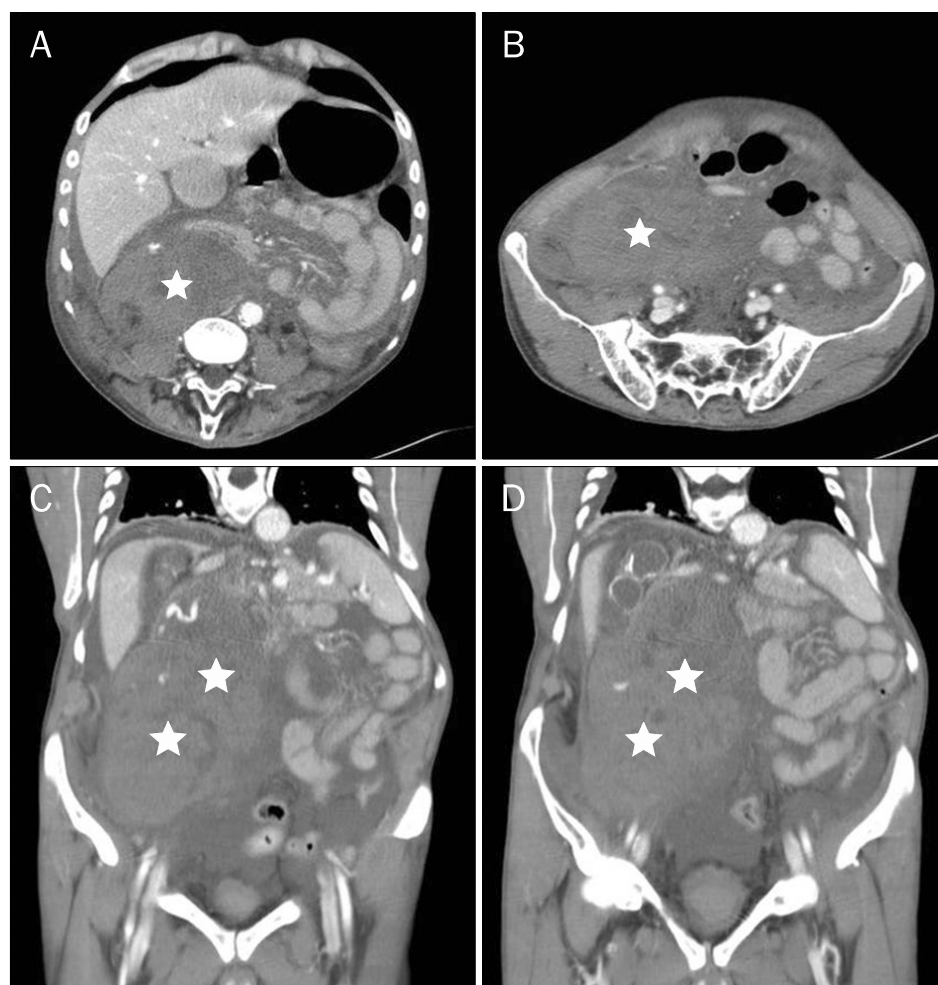


**Fig. 2.** Endoscopic findings. A fish bone was stuck in the duodenal wall (A, B). During endoscopy, the fish bone was removed by biopsy forceps (C). The fish bone was measured about 3 cm-in length (D).

time of 76% (normal range: 74-119), activated partial thromboplastin time of 22 seconds, blood urea nitrogen of 39.0 mg/dL, and creatinine of 7.4 mg/dL. Plain abdominal X-ray revealed severe kyphosis and no other abnormalities in the abdomen (Fig. 1).

An emergent esophagogastroduodenoscopy revealed a

long curved fish bone stuck to the medial wall of the second portion of the duodenum (Fig. 2A, 2B), and three ulcers covered with fresh blood clots on the opposite side. These ulcers were thought to have been made by the sharp end of the bone scratching the opposite wall. The foreign body was removed carefully by biopsy forceps (FB-21K-1, Olympus Medical Sys-



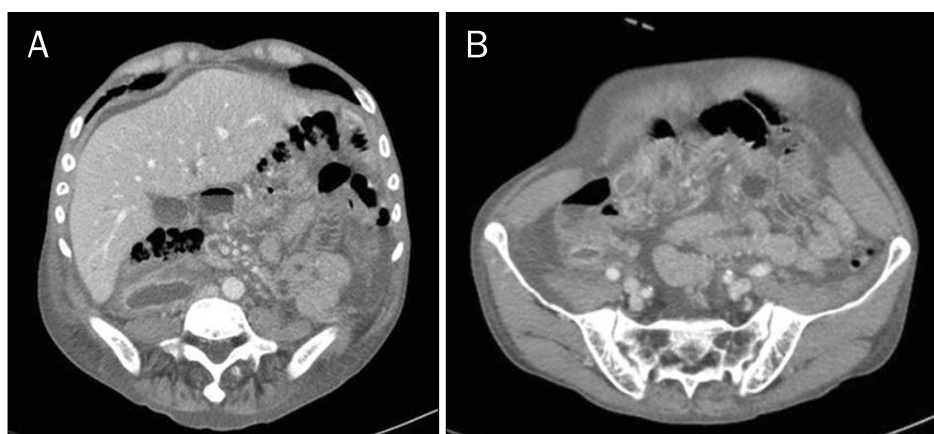
**Fig. 3.** Abdomen CT findings. One day after removing the fish bone, it showed retroperitoneal hemorrhage (white star). (A) Hemorrhage was noted around the second portion of the duodenum. (B) The hemorrhage extended to the retroperitoneal space of the pelvis. (C, D) A huge retroperitoneal hemorrhage was seen in the coronal view.

tems Corp., Tokyo, Japan) (Fig. 2C, 2D). The removed site showed erythematous mucosal injury, but immediate complications such as bleeding or perforation did not occur (Fig. 2C). The ulcers were treated using hemoclips (EZ-clip, Olympus Medical Systems Corp.) applications to exposed vessels. The total procedure time was 19 minutes. Immediately afterward, CT was performed to look for injuries outside the duodenum in which the fish bone had been stuck. No abnormality was noted in the CT. From subsequent history taking after removing fish bone, he did not remember ingestion of food including fish. He received hemodialysis and transfusion of two units of packed red blood cell. The hemoglobin after transfusion was 10.5 mg/dL.

One day after removing the fish bone, the patient complained of abdominal pain. His abdomen was found to be distended on physical examination. The vital signs were as follows: blood pressure of 150/90 mmHg, pulse rate of 80 beats per minute, and body temperature of 36.6°C. Immedi-

ate blood test revealed hemoglobin of 8.6 g/dL, and platelet count of 121,000/mm<sup>3</sup>, blood urea nitrogen of 30.1 mg/dL, and creatinine of 5.4 mg/dL. CT revealed a massive retroperitoneal hemorrhage and the extravasation of contrast from the pancreaticoduodenal artery (Fig. 3).

Angiography with embolization was impossible due to abnormally deviated structure of the major vessels, including the abdominal aorta. Emergency surgery was considered, but the risk of morbidity and mortality was high, compared to the risk of conservative care. He was admitted to the intensive care unit and received careful monitoring. Four units of fresh frozen plasma and four units of packed red blood cell were transfused. Hemodialysis was performed through continuous renal replacement therapy. Twenty days after removing the fish bone, follow-up CT revealed marked resolution of the retroperitoneal hematoma (Fig. 4). The patient was discharged in good condition after 24 days from admission.



**Fig. 4.** Follow up abdomen CT findings. Twenty days after removing the fish bone, the retroperitoneal hemorrhage had resolved around the duodenum (A) and in the pelvis (B).

## DISCUSSION

An ingested fish bone can cause severe injuries to the GI tract, including intestinal perforation, intra-abdominal abscess, aorto-esophageal fistula, and aortic rupture although the majority will pass spontaneously.<sup>3,4,7,8</sup> Endoscopic management is the treatment of choice. Most procedure-related complications are non-lethal.<sup>5,6,9</sup> Thus, endoscopic treatment can be safely performed. However, endoscopic treatment should be carefully performed in case of patients having coagulopathy comorbidity like anticoagulant therapy, hemodialysis, and hemophilia for preventing complications such as mucosal injuries or bleeding. In addition, after procedures, close observation to monitor bleeding or other complications is necessary.

Retroperitoneal hemorrhage is a rare disorder with variable etiology.<sup>10</sup> Spontaneous retroperitoneal hemorrhage is associated with anticoagulation or end-stage renal disease in hemodialysis.<sup>11</sup> Iatrogenic retroperitoneal hemorrhage can occur as a complication of vascular catheterization or retroperitoneal surgery.<sup>10</sup> Diagnostic endoscopic procedures can cause retroperitoneal hemorrhage. Both duodenal biopsy during esophagogastroduodenoscopy and routine colonoscopy have been reported to cause retroperitoneal hemorrhage.<sup>12,13</sup> Invasive endoscopic procedures, such as endoscopic ultrasound-guided fine needle aspiration and percutaneous endoscopic gastrostomy can cause retroperitoneal hemorrhage.<sup>14,15</sup>

The diagnosis of retroperitoneal hemorrhage is difficult and delayed because symptoms are nonspecific.<sup>10</sup> However early and accurate diagnosis is very important, and therefore if retroperitoneal hemorrhage is clinically suspected, diag-

nostic imaging should be performed. Multi-detector CT is non-invasive and relatively rapid. It provides an accurate assessment of retroperitoneal hemorrhage.<sup>10</sup>

Treatment of a retroperitoneal hemorrhage depends on the clinical situation. For a retroperitoneal hemorrhage related to coagulopathy, such as hemophilia or anticoagulation, conservative care with replacement of coagulation factor is recommended, although surgical treatment should be also considered.<sup>3</sup> Selective intra-arterial embolization is used to stop bleeding as an alternative to open surgery.<sup>10</sup> Open surgery is indicated if the hemodynamic instability continues despite careful conservative care, or if endovascular intervention is failed or unavailable.<sup>10</sup> The treatment should be decided after considering various factors, such as the etiology and severity.

To our knowledge, this report is the first case of retroperitoneal hemorrhage as a complication of endoscopic foreign body retrieval. In our case, the pancreaticoduodenal artery might have been injured by the foreign body and the retrieval of the foreign body might have revealed the vascular injury. The bleeding tendency of the patient with end-stage renal disease might partially contribute to this complication. Thus, if a fish bone is stuck in the wall of the GI tract, the retrieval should be performed carefully, and close observation is necessary.

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