

1. Thymoma op. 이후 발생한 vein graft obstruction의 Hybrid op. 체험레

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남자 60세로 2009년도에 invasive thymoma (type B, Masaoka stage IVb)로 mass excision, chest wall reconstruction, Rt. subclavian-jugular vein to RA, Lt. innominate vein to SVC 받고 warfarin Mx. (INR 1.5-2) 하면서 외래 경과 관찰 중이었다.

op. 직후부터 Lt. vein graft는 thrombosis 로 obstruction 되었지만 Rt. graft patency 는 잘 유지되었다. 하지만 환자분 지속적인 asphyxia 증상 호소 (머리를 숙일 때 두통이 생긴다.) 하여 2012.1에 venogram을 시행하였다. venogram 상 Rt. vein graft 와 RA 문합 부위의 stenosis (>75%) 소견 보여 stenting with balloon dilatation 시행하였다.

이후 몇 개월간 증상 완화 보여 경과 관찰 중 2012.9.13. f/u CT에서 Rt.vein graft with stentx1 에 thrombosis 로 obstruction 관찰 됨. 2012.9.14.에 venogram 시행 하여, 이전 graft stenting 부위 보다 Rt. subclavian-jugular 방향으로 stent 한 개 더 삽입하였다.

이후 간간히 머리 숙일 때 두통이 있었지만 f/u CT에서 patency 유지 잘 되어 warfarin Mx.하며 경과 관찰 하였다.

2016.10 부터 warfarin에서 astrix 로 약물 변경 하며 외래 경과 관찰 하였다.

2017. 2에 3일전부터 시작된 얼굴 부종 및 양쪽 상지 부종으로 응급실 내원하여 check 한 CT에서 Rt. vein graft with stentx2 에 thrombosis로 obstruction 관찰 되었다. Intervention 으로 재개통 불가능할 것으로 생각되어 hybrid op. 시행함 (2017.2.8.) op. finding은 graft가 redundant하여 kinking 되어 있고 주위에 dense한 fibrotic tissue 들이 graft를 external compression 하고 있었다. kinking 된 부위의 graft를 열어 stent 일부를 제거하고 remnant stent 주위의 thrombosis를 제거 후 graft를 further resection 하고 anastomosis 하였다. 향후 external compression을 방지하기 위해 skull bone defect 에 사용되는 titanium mesh를 감아서 graft 외벽에 보강하였다. 수술후 intra op. venogram을 시행하고 graft 의 low portion blood flow가 없는 것을 확인 후 ballon dilatation 을 시행하였다. ballon dilatation 시행후 재개통을 확인 후 Rt. jugular vein catheter를 유지하고 수술을 종료하였다. POD 0 day ICU care 하면서 Rt. jugular vein catheter를 통해 UK infusion을 12hr. 유지하였다.

POD #4D CT f/u 하였고, graft 의 blood flow가 잘 유지됨을 확인하였다.

질문이 있습니다.

1. Thymoma op. 이후 생긴 vein graft thrombosis 해결을 위해 op.와 intervention 중 어떤 방법이 더 나을까요?
2. 이전 방식 대로 op.를 시행하고 post op. angio room으로 환자를 이동하여 intervention을 받는 방법과 hybrid op. 중 어떤 방법이 더 효율적인가요?

2. Delayed iatrogenic diaphragmatic hernia after left lower lobectomy

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삼성서울병원

We have a 66-year-old male patient on the regular follow up of outpatient clinic after lung cancer surgery without problems. Around 9 months postoperatively, he visited the emergency department due to nausea and vomiting after routine health check of esophagogastroscope at local clinic. He had a history of chronic gastritis. Abdomen computed tomography demonstrated the body of stomach herniating into the left thoracic cavity. There was no sign of infection or free abdominal gas. He had undergone left lower lobectomy via open thoracotomy for primary lung cancer without any documented problem and been discharged without any complication. There had been some adhesions between left lower lobe and diaphragm on the operation record. The impression was delayed diaphragm hernia after iatrogenic diaphragm injury. We planned urgent operation to perform reduction of herniated stomach and repair of diaphragm. Considering adhesions in pleural cavity, we explored pleural cavity by VATS. Herniated stomach was found and adhesiolysis was performed. But the reduction of the stomach was not so easy just by VATS. We added laparotomy incision and the stomach was reduced in the abdominal cavity. The diaphragmatic defect was sutured through VATS. The postoperative course was uneventful, and the patient was discharged on the 6th postoperative day with resolution of digestive symptoms. We suggest that thoracic surgeons need to watch diaphragm injury during lower lobe resection and suspect the possibility of iatrogenic diaphragmatic hernia in patients with late-onset nausea or vomiting, especially following left-sided thoracic procedure.

3. Reduction of complicated gastric conduit herniation which developed after 5 years of Ivor Lewis operation

박성용

아주대병원

64 years-old male patient admitted due to chronic dysphagia. During recent two months, he could not swallow anything except the liquid diet and weight lost more than 10kg during 2 month. He diagnosed as esophageal squamous cell carcinoma (mid, pT1bN0M0) and received the Ivor Lewis operation at 2012. 6. 12. After operation, recurrences were not detected on surveillance until now, but on the surveillance chest CT, the gastric conduit was enlarged at the thoracic cavity and it herniated to the right thoracic cavity. The herniation progressed over time during follow-up period. On EGD, the antral side of gastric conduit showed torsion. Therefore, the urgent reduction of herniated gastric conduit was planned. The abdominal approach via laparotomy was done first. The adhesiolysis around the hiatus was done after finding the course of right gastroepiploic artery. The hiatus was tight, so the hiatus was enlarged with 4-finger width. After abdominal adhesiolysis, right thoracotomy was done via 6th intercostal space. The lung and gastric conduit showed adhesion and the gastric conduit was herniated at thoracic cavity. After thoracic adhesiolysis, the reduction of redundant herniated gastric conduit was done. The gastric conduit was fixed at mediastinum. Then, re-laparotomy was done for the fixation of gastric conduit to the hiatus. The gastric conduit was fixed to the bilateral crus muscle for preventing the recurrent herniation. After operation, esophagography showed the good passage of barium. The patient started oral feeding and discharged at POD 10 without any swallowing problems and complications.

4. Fibrin glue application under pleurography in patients with postoperative airleakage

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부산대병원

Purpose

Postoperative airleakage after major lung surgery is one of problems which could be frequently develop in thoracic surgery. However, the management of airleakage is bothersome and the reoperation for controlling airleakage is considered to be avoidable due to severe adhesion. Herein, we would like to introduce successfully treated cases with fibrin glue application under pleurography in patients with prolonged postoperative airleakage.

Methods

Fibrin glue application under pleurography was performed in five patients with intractable persistent airleakage. Of them, two patients were suffered from secondary spontaneous pneumothorax; one for cancer related pneumothorax and the other for emphysema. The other three patients had prolonged airleakage after previous operations; one had wedge resection of right lower lobe, who previously had right upper lobectomy due to lung cancer three years ago, another patient had wedge resection of right lower lobe to exclude atypical malignancy, and the other one was planned to undergo esophagectomy, but failed to operation because of severe adhesion developed from tuberculous pleurisy.

Fibrin glue application under pleurography was performed in following process. First, the air leak point is identified by pleurography with a contrast medium. Secondly Flexor® Check-Flo® Introducer (COOK medical incorporated, IN, USA) which makes possible for catheter to be introduced is inserted through a chest tube and guided to the air leak point. Double lumen catheter is inserted through introducer and allow fibrin glue A and B, each diluted with contrast media, are dropped in alternation slowly just at the air leak point.

Results

Three of five cases were sealed soon after dropping the glue and the other two cases were sealed in 48 hours. Of three cases which were sealed soon after glue application, the chest tube could be removed in less than 3 days. The other two cases were also successfully removed in 7 days.

Conclusion

Fibrin glue application under pleurography could be treatment of options to seal the airleakage, especially in cases with complicated postoperative prolonged airleakage.

5. Repair of post-radiation bronchoesophageal fistula by Megaderm sheet and omental flap transposition in patient with locally advanced esophageal cancer.

박준석

분당차병원

A 67-year-old male patient with locally advanced mid-esophageal cancer underwent definitive CCRT. The tumor was located at the level of the azygos vein and carina, with longitudinal span of 8cm. Initial CT scan suggested invasion of the left main bronchus and the adventitia of aorta.

After 4200cGy of radiation, fistula developed between the tumor and the left main bronchus. Covered esophageal metal stent was placed to control the fistula but failed. Ongoing aspiration and subsequent pneumonia could not be managed by medical treatment. Therefore he was referred to thoracic surgery department for BEF closure.

Surgical plan was as follows.

1. Bypass surgery by cervical esophagogastrostomy via substernal route.
2. Curative (if possible), or palliative resection of esophageal tumor and closure of BEF.
3. Transposition of pedicled omental flap into posterior mediastinal space for coverage and prevention of prosthesis dehiscence.

Megaderm, the human skin prosthesis, was selected for closure material, because it has similar bioaffinity and manageability as bovine pericardium, but also has some degree of mechanical rigidity according to the thickness. (1.5mm thickness Megaderm sheet was used in this case)

Bypass surgery was performed first via substernal route. During the stomach preparation, nearly entire greater omentum pedicle was also prepared leaving the omental branch of right gastroepiploic artery as feeder. The pedicle was sutured to distal esophageal stump for transposition.

After conventional esophagectomy by right thoracotomy, the fistula could be identified at the posterior portion of mid portion of left main bronchus. After careful debridement, the size of fistula was measured about 1.5cm. Megaderm sheet was sutured onto the fistula by multiple interrupted sutures and additional stay sutures were placed around the closure to prevent migration and support the primary suture.

After the air-tightness of suture was confirmed, the omental pedicle was pulled-up to cover the whole course of esophagectomy and secured by multiple interrupted suture approximation of the mediastinal pleura.

Postoperative course was uneventful until 20th postoperative day. Follow-up bronchoscopy revealed intact prosthesis without suture dehiscence or loosening on POD #7. Diet build-up was completed in 2nd postoperative week, and discharge plan and education was explained for a week.

However, the patient disobeyed the direction and started to smoke since the 2nd weekend. He was transferred to ICU due to acute respiratory failure and is under ventilator support. Prosthesis intactness was again confirmed by another follow-up bronchoscopy for toileting on POD #28.

6. Tracheoesophageal Fistula

도영우, 이근동, 이성수

강남세브란스병원

특이 과거력 없는 65세 여환으로 타병원에서 esophageal diverticulum 진단하에 수술적 치료 시행하였으나, 수술 부위 leakage 관찰되어 esophageal stent 삽입 후 further treatment 위해 본원 전원 된 환자입니다. 전원 이후 환자 septic condition으로 intensive care 시행하였고, condition 호전 되었으나, 이전에 삽입한 esophageal stent 에 의한 tracheoesophageal fistula 발생하였습니다. 이후 TEF에 대한 수술적 치료 시행하였으나 실패하여 추후 management 상의하고자 합니다.