6 ulusal CERRAHİ ONKOLOJİ KONGRESİ

24 - 27 Şubat 2022 | Gloria Golf Resort – ANTALYA

PROF. DR. AZİZ SÜMER

İSTİNYE ÜNV. TIP FAKÜLTESİ GENEL CERRAHİ ABD

Postoperatif sorunlar: kaçak, darlık, reflü, atoni, kusma...

- Özofagu
- Basit tüb
- Vücutta
- Rezeksiy
- Komşulu
- Deneyim

…or bir konu

…fazla

Box 1
Partial list of esophagectomy techniques with associated CPT codes

- Transhiatal: total esophagectomy, without thoracotomy, with cervical esophagogastrostomy (43107)
- Three hole: total esophagectomy with thoracotomy; with cervical esophagogastrostomy (43112)
- Ivor Lewis: partial esophagectomy, distal two-thirds, with thoracotomy and separate abdominal incision (43117)
- Thoracoabdominal: partial esophagectomy, thoracoabdominal approach (43122)
- Minimally invasive 3-hole esophagectomy
- Minimally invasive esophagectomy, Ivor Lewis approach
- Minimally invasive esophagectomy, abdominal and neck approach
- Total esophagectomy without thoracotomy; with colon interposition or small intestine reconstruction (43108)
- Total esophagectomy with thoracotomy; with colon interposition or small intestine reconstruction (43113)
- Partial esophagectomy, cervical, with free intestinal graft, including microvascular anastomosis (43116)
- Partial esophagectomy, with thoracotomy and separate abdominal incision with colon interposition or small intestine (43118)
- Partial esophagectomy, distal two-thirds, with thoracotomy only (43121)
- Partial esophagectomy, thoracoabdominal with colon interposition or small intestine (43123)
- Total or partial esophagectomy, without reconstruction with cervical esophagostomy (43124)

Data from Listing Available at: www.sts.org.

Surg Clin N Am 92 (2012) 1299–1313

Mortalite

- Hastanede ve 30 günlük Mortalite olarak belirlenir
- %0-22
- Farklı parametreler etkili
- Metzger ve ark. 13 çalışmayı değerlendirdikleri metaanalizde; en önem değişken yıllık vaka sayısı
  - Yıllık <5 vaka → %18 ortalama mortalite
  - Yıllık >20 vaka → %4.9 ortalama mortalite
- Rodgers ve ark. 3243 özofajektomi
  - Yaş,Cinsiyet,Irk,Periferik Damar Hastalıkları, Beslenme Durumu ve Fizik Kapasitesi

Dis Esophagus 2004;17(4):310–4.
Arch Surg 2007;142(9):829–39

Pumoner Komplikasyonlar

- En sık görülen komplikasyon %21-40
- Mortalitelerin 2/3 den sorumlu
- Pnömoni,48 saat ve üzeri Ventilatör gereksinimi, re-entübasyon
- Pnömoni ve yaş mortaliteyi etkileyen bağımsız faktörler
- Pnömoni olanlarda mortalite oranı 7 kat daha fazla
- ARDS %14.5, mortalite oranı %50
- FEV 1 < %65, Vital kapasite <%90 ve PaO2 <70 mmHG prediktif faktörler

Respiratory complications following esophagectomy from selected studies

	Year of Publication	n	Pneumonia, %	Reintubation, %	Ventilator Dependency >48 h, %
Bailey et al[7]	2003	1777	21.4	16.2	21.8
Avendano et al[8]	2002	61	32.8	19.7	19.7
Atkins et al[9]	2004	379	15.8	6.1	4.7
Tandon et al[11]	2001	168	17.8	NA	23.8

Ann Thorac Surg 2004;78(4):1170–6.
Ann Thorac Surg 2003;75(1):217–22.

Kardiyovasküler komplikasyonlar

- Atrial fibrilasyon %13,7-22
- Miyokard infarktüsü %1.1-3.8
- Derin ven trombozu-akciğer embolisi%0.9-.4

Pulmoner komplikasyonlar
Böbrek yetmezliği
Anastomoz kaçağı 6 kat daha fazla
Mortalite 7 kat daha fazla

Ann Thorac Surg 2004;78(4):1170–6.
Ann Thorac Surg 2010;90(3):936–42.

Rekürren laringeal sinir hasarı

- En sık solda, servikal disseksiyon sırasında

Recurrent laryngeal nerve injury rates following esophagectomy from selected studies

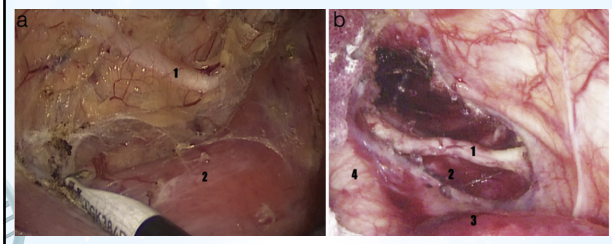
	Year of Publication	n	Recurrent Laryngeal Nerve Injury Rate, %
Atkins et al[6]	2004	379	2.1
Orringer et al[38]	2007	—	—
Group I	1976–98	1063	7.0
Group II	1998–2006	944	2.0
Hulscher et al[12]	2002	—	—
Transhiatal	—	106	13.0
Transthoracic	—	114	21.0
Gockel et al[64]	2005	424	15.7
Altorki et al[65]	2002	88	6.0

Chirurgie Thoracique Cardio-Vasculaire 2010;14:25–8
Dig Surg 2011;28(1):29–35.

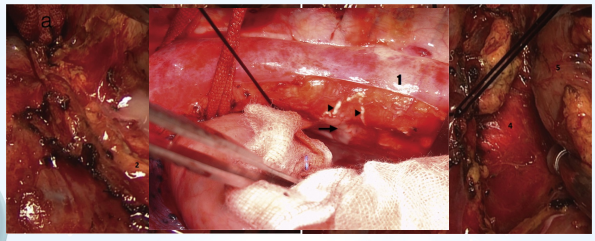
Şilotoraks

- Şilöz sıvı lenfosit, yağ,protein ve elektrolit içerir, 2-4 litre/gün
- Şilotoraks %2-8,2 (mortalite %50)
- Tanı; toraks tüpünde süt kıvamında gelen olması, plevral sıvıda >110mg/dl Trigliserid ve şilomikron olması
- Konservatif tedavi(%61);Oral stop,TPN,sıvı elektrolit dengesi,oktreotid
- 5. gün >10ml/kg üzerinde drenaj:konservatif tedavi başarısız olacak demektir (Snst %86, Spsf %100)
- Lenfojiyografik embolizasyon (deneyimli radyolog)
- VATS - Açık Duktus Thorasicus ligasyonu,
- Mass ligasyon (vertebra ve aorta arası dokuların bağlanması-azygos ven dahil)

Eur J Cardi- othorac Surg 2008;33(3):
J Thorac Cardiovasc Surg 2000



Selective En Masse Ligation of the Thoracic Duct to Prevent Chyle Leak After Esophagectomy



Anastomoz Kaçağı

- İskemi ve denervasyon özofajektominin doğasında var
- Gastric conduit azalmış perfüzyon (%70)- iyileşme sorunu ve kaçak
- Konduit iskemi %1-9
- Kaçak oranı %5-30

Anastomotic leak rates following esophagectomy from selected studies

	Year of Publication	n	Anastomotic Leak Rate, %
Atkins et al[6]	2004	379	14.0
Seely et al[13]	2010	52	9.6
Orringer et al[38]	2007	2007	12.0
Hulscher et al[12]	2002	—	—
Transhiatal	—	106	14.0
Transthoracic	—	114	16.0
Briel et al[42]	2004	393	10.9
Merritt et al[66]	2011	138	12.3[3,7,38,61,62]
van Heijl et al[53]	2010	607	10.7

J Thorac Car- diovasc Surg 2005;129(3):623–31
Surg Clin N Am 92 (2012) 1299–1313
Ann Esophagus 2021;4:8

Anastomoz kaçağı-faktörler

Table 1 Classification of anastomotic leakage se

Leakage severity	Criteria
Grade 1	Local defect requ
Grade 2	Localized defect stent or bedside
Grade 3	Localized defect

Classification of anastomotic leakage accordi
2015 (18).

Contributing factors
Patient
Hypoalbuminemia (19,20)[7]
Older age (21)
Alcohol abuse (21)
Obesity (BMI >30 kg/m²) (21-24)
Comorbidities: diabetes, hypertension, chronic kidney disease, COPD myocardial infarction, heart failure, cardiac arrhythmia (21,25,26)
Celiac artery calcifications and systemic atherosclerosis (21,27)[7]
Steroid or immunosuppressant use (21)
Oncological
Radiation therapy: radiation of gastric fundus (28,29) or in field anastomosis (30)[7]
Anti-angiogenic therapy (i.e., bevacizumab) (31)[7]
Perioperative
Prolonged mechanical ventilation (32)
Gastric distention and delayed gastric emptying (32,33)
Intraoperative hypotension (21)
Need for blood transfusion (21)

r with dietary modification

'or example, interventional radiology drain,

isus Group (ECCG), published by Low *et al.*

Ann Esophagus 2021;4:8

örler

- Anastomoz te
- Anasotomoz
- Conduit yeri
- Conduit Şekli

Chang ve ark.
Transhiyatal (Stenoz daha yüksek)
Transtorasik (5 yıllık servi aynı)

Briel ve ark. Komplikasyon açısından fark yok.

Urschel
Collard
Davis

Anastomoz komplikasyonları daha fazla

Am J Surg 1998;175(4):337–40
Dig Surg 2011;28(1):29–35.
J Thorac Car- diovasc Surg 2005;129(3):623–31.
Ann Thorac Surg 2008;85(2):424–9.
Am J Surg 2001;182(5):470–5.

Anastomoz kaçağı

The Impact of Anastomotic Techniques on Post-operative Anastomotic Complications:
Results of the Oesophago-Gastric Anastomosis Audit (OGAA)

- Prospective cohort study
- 2238 Patients
- 137 Centres
- Largest study of anastomotic techniques for esophagectomy

Adjusted binary logistic regression modelling identifying the impact of anastomotic technique (circular stapled, linear stapled or handsewn) on anastomotic leak(AL) and conduit necrosis(CN) rates

Overall rates of AL/CN varied from 19.3% in handsewn anastomoses, to 14.0% in linear stapled, and 12.1% in circular stapled

This effect was predominantly seen for neck anastomoses

Handsewn Anastomoses are associated with higher rates of anastomotic failure in neck anastomoses, however no difference in failure rates is seen in chest anastomoses between different techniques

Factor	Intervention
Operation approach	Favors transthoracic over transhiatal (21)
Anastomosis location	Favors intrathoracic over cervical anastomosis (21)
Anastomosis technique	Favors stapled over handsewn (21,34,35)†
Anastomotic reinforcement	Omentoplasty (21)
Conduit vascularization	Preoperative ischemic preconditioning (i.e., laparoscopic ligation, radiologic embolization) (36)†
	Intraoperative vascular-enhanced anastomosis (37,38)†

†, possible factor, contradicting evidence or still under investigation.

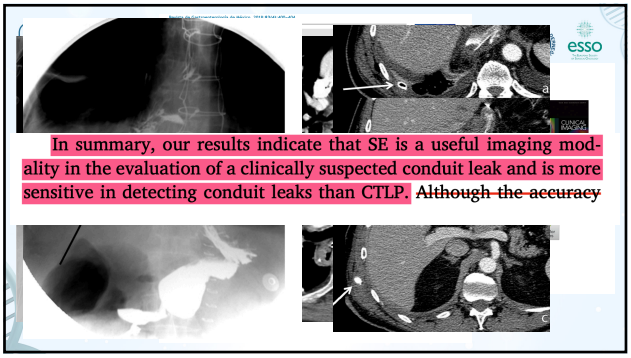
Ann Esophagus 2021;4:8

[redacted]

Thoracic inlet space and bone thickness

Variable	Leakage+ ($n = 38$)	Leakage− ($n = 210$)	*P* value
Thickness of the sternum (mm)			
Median (range)	18.33 (13.33–26.84)	16.38 (10.32–32.50)	.002
Thickness of the clavicle (mm)			
Median (range)	25.13 (20.37–32.02)	23.92 (17.23–31.97)	.006
Sternum tracheal distance (mm)			
Median (range)	12.87 (5.07–34.34)	16.03 (4.88–29.26)	.001
Interclavicular distance (mm)			
Median (range)	32.32 (21.88–44.40)	29.94 (19.32–72.19)	.011
Thoracic inlet area (mm^2)			
Median (range)	424.36 (200.67–1011.72)	483.39 (151.87–1553.67)	.037
Sternum vertebral body distance (mm)			
Median (range)	47.68 (35.07–72.97)	50.61 (28.99–70.92)	.141
Sternum tracheal distance/sternum vertebral body distance ratio			
Median (range)	0.295 (0.13–0.60)	0.33 (0.14–0.57)	.002

[redacted]



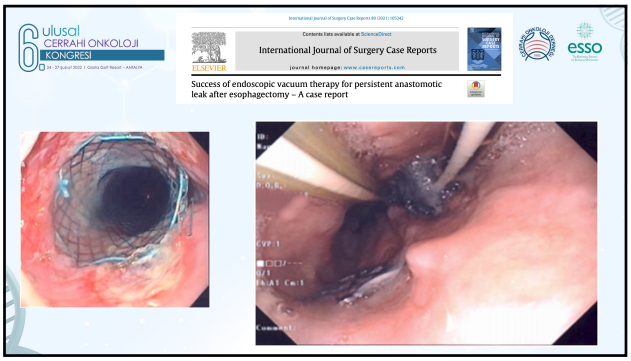
In summary, our results indicate that SE is a useful imaging modality in the evaluation of a clinically suspected conduit leak and is more sensitive in detecting conduit leaks than CTLP. ~~Although the accuracy~~

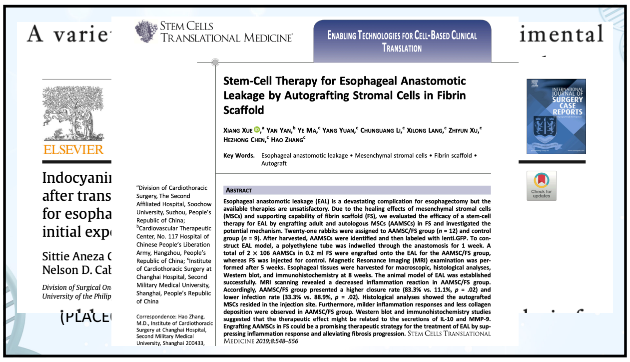
Anastomoz kaçağı tedavi

- Kanıta dayalı belirgin bir tedavi algoritması yok
- Hastanın durumuna göre konservatif yada cerrahi- Klinisyen kararı önemli
- Endoscopic vacuum-assisted closure (EVAC)
- Self- expanding metal stents (SEMS)
- Cerrahi tedavi (ilk 72 saatte yada iskemik anasotomoz, sepsis ve başarısız diğer yöntemler)
  - Drenaj; 3 tüp
  - Cerrahi debridman
  - Reanastomoz
  - Özofagus diversiyonu
  - Pediküllü kas grefti
  - Omentum, Plevra, Perikardiy

>2 cm defekt
Totale yakın efekt
Diffüz kontaminasyon
Diğer tedavilerin başarısızlığı

Ann Esophagus 2021;4:8

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STEM CELLS TRANSLATIONAL MEDICINE
ENABLING TECHNOLOGIES FOR CELL-BASED CLINICAL TRANSLATION
Stem-Cell Therapy for Esophageal Anastomotic Leakage by Autografting Stromal Cells in Fibrin Scaffold
XIANG XUE,[a] YAN YAN,[b] YE MA,[c] YANG YUAN,[c] CHUNGUANG LI,[c] XILONG LANG,[c] ZHIYUN XU,[c] HEZHONG CHEN,[c] HAO ZHANG[c]
Key Words. Esophageal anastomotic leakage • Mesenchymal stromal cells • Fibrin scaffold • Autograft
[a]Division of Cardiothoracic Surgery, The Second Affiliated Hospital, Soochow University, Suzhou, People's Republic of China; [b]Cardiovascular Therapeutic Center, No. 117 Hospital of Chinese People's Liberation Army, Hangzhou, People's Republic of China; [c]Institute of Cardiothoracic Surgery at Changhai Hospital, Second Military Medical University, Shanghai, People's Republic of China
Correspondence: Hao Zhang, M.D., Institute of Cardiothoracic Surgery at Changhai Hospital, Second Military Medical University, Shanghai 200433,
ABSTRACT
Esophageal anastomotic leakage (EAL) is a devastating complication for esophagectomy but the available therapies are unsatisfactory. Due to the healing effects of mesenchymal stromal cells (MSCs) and supporting capability of fibrin scaffold (FS), we evaluated the efficacy of a stem-cell therapy for EAL by engrafting adult and autologous MSCs (AAMSCs) in FS and investigated the potential mechanism. Twenty-one rabbits were assigned to AAMSC/FS group (n = 12) and control group (n = 9). After harvested, AAMSCs were identified and then labeled with lenti.GFP. To construct EAL model, a polyethylene tube was indwelled through the anastomosis for 1 week. A total of 2 × 106 AAMSCs in 0.2 ml FS were engrafted onto the EAL for the AAMSC/FS group, whereas FS was injected for control. Magnetic Resonance Imaging (MRI) examination was performed after 5 weeks. Esophageal tissues were harvested for macroscopic, histological analyses, Western blot, and immunohistochemistry at 8 weeks. The animal model of EAL was established successfully. MRI scanning revealed a decreased inflammation reaction in AAMSC/FS group. Accordingly, AAMSC/FS group presented a higher closure rate (83.3% vs. 11.1%, p = .02) and lower infection rate (33.3% vs. 88.9%, p = .02). Histological analyses showed the autografted MSCs resided in the injection site. Furthermore, milder inflammation responses and less collagen deposition were observed in AAMSC/FS group. Western blot and immunohistochemistry studies suggested that the therapeutic effect might be related to the secretions of IL-10 and MMP-9. Engrafting AAMSCs in FS could be a promising therapeutic strategy for the treatment of EAL by suppressing inflammation response and alleviating fibrosis progression. STEM CELLS TRANSLATIONAL MEDICINE 2019;8:548–556
INTERNATIONAL JOURNAL OF SURGERY CASE REPORTS
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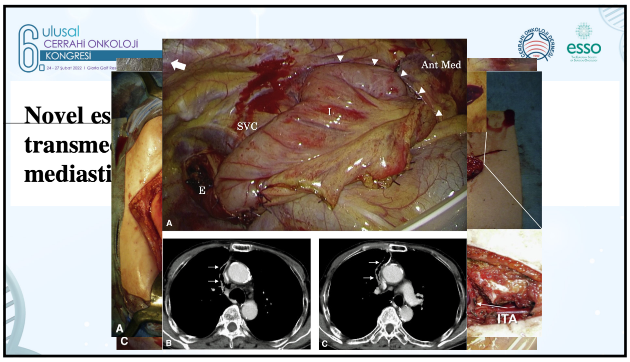
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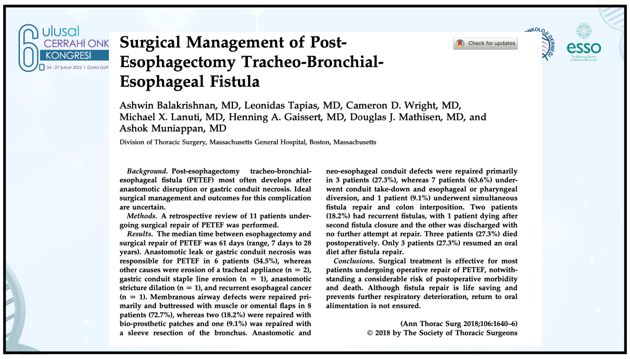
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Surgical Management of Post-Esophagectomy Tracheo-Bronchial-Esophageal Fistula
Ashwin Balakrishnan, MD, Leonidas Tapias, MD, Cameron D. Wright, MD, Michael X. Lanuti, MD, Henning A. Gaissert, MD, Douglas J. Mathisen, MD, and Ashok Muniappan, MD
Division of Thoracic Surgery, Massachusetts General Hospital, Boston, Massachusetts
Background. Post-esophagectomy tracheo-bronchial-esophageal fistula (PETEF) most often develops after anastomotic disruption or gastric conduit necrosis. Ideal surgical management and outcomes for this complication are uncertain.
Methods. A retrospective review of 11 patients undergoing surgical repair of PETEF was performed.
Results. The median time between esophagectomy and surgical repair of PETEF was 61 days (range, 7 days to 28 years). Anastomotic leak or gastric conduit necrosis was responsible for PETEF in 6 patients (54.5%), whereas other causes were erosion of a tracheal appliance (n = 2), gastric conduit staple line erosion (n = 1), anastomotic stricture dilation (n = 1), and recurrent esophageal cancer (n = 1). Membranous airway defects were repaired primarily and buttressed with muscle or omental flaps in 8 patients (72.7%), whereas two (18.2%) were repaired with bio-prosthetic patches and one (9.1%) was repaired with a sleeve resection of the bronchus. Anastomotic and neo-esophageal conduit defects were repaired primarily in 3 patients (27.3%), whereas 7 patients (63.6%) underwent conduit take-down and esophageal or pharyngeal diversion, and 1 patient (9.1%) underwent simultaneous fistula repair and colon interposition. Two patients (18.2%) had recurrent fistulas, with 1 patient dying after second fistula closure and the other was discharged with no further attempt at repair. Three patients (27.3%) died postoperatively. Only 3 patients (27.3%) resumed an oral diet after fistula repair.
Conclusions. Surgical treatment is effective for most patients undergoing operative repair of PETEF, notwithstanding a considerable risk of postoperative morbidity and death. Although fistula repair is life saving and prevents further respiratory deterioration, return to oral alimentation is not ensured.
(Ann Thorac Surg 2018;106:1640–6)
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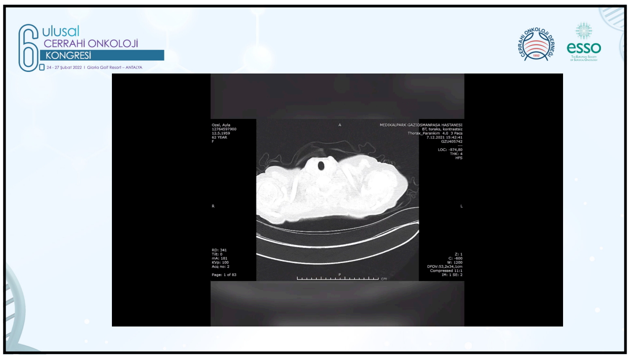
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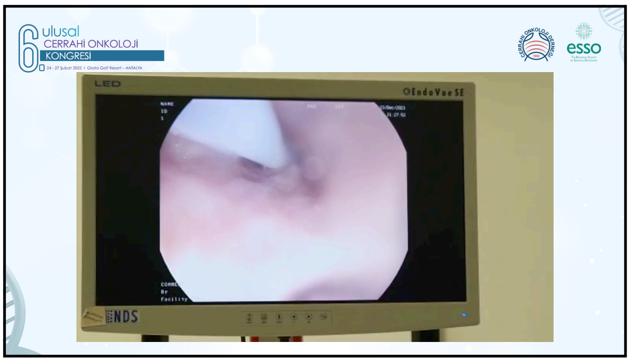
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THORACIC: ESOPHAGEAL CANCER
The cost burden of clinically significant esophageal anastomotic leaks—a steep price to pay
ABSTRACT
The Journal of Thoracic and Cardiovascular Surgery • May 2019

Fonksiyonel Conduit Problemleri

- Özofajektomi sonrası normal digestif fonksiyon %20

Dumping Sendrom
Gecikmiş Mide Boşalması
Disfaji
Reflü

Ann Thorac Surg 2002; 73(6):1697–702
Thorac Surg Clin 2006;16(1):53–62

Dumping Sendromu

- %50 kadar görülebilir
- %1-5 engelliliğe neden olur
- Erken Dumping: Gastrointestinal ve vazomotor sepmtomlar
  - Yemek sonrası 10-30 dk
  - Hiperosmolar besinlerin ince barsaklara hızlı geçişi
- Geç Dumping: %25 görülme sıklığı
  - Yemek sonrası 1- 3 saat
  - İnsülin salınmasına bağlı hipoglisemi ve semptomları
- Diyet değişiklikleri: Karbonhidrat ve basit şekerleri diyetten çıkarmak, az az ama sık yemek, yemek sırasında katı ile sıvıları karıştırmamak
- Diyet değişikliklerine rağmen şikayetleri devam edenlerde: Oktreotid

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Management of Delayed Gastric Emptying After Esophagectomy With Endoscopic Balloon Dilatation of the Pylorus

Michael Lanuti, MD, Pierre DeDelva, MD, Christopher R. Morse, MD, Cameron D. Wright, MD, John C. Wain, MD, Henning A. Gaissert, MD, Dean M. Donahue, MD, and Douglas J. Mathisen, MD

Division of Thoracic Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts

Background. This study seeks to evaluate the use of postoperative pyloric balloon dilatation for delayed gastric emptying after esophageal substitution with gastric conduit.

Methods. A total of 436 patients underwent esophagectomy with gastric conduit from 2002 to 2009. All approaches to esophagectomy were included except patients with alternative reconstruction or emergent esophagectomy. Gastric conduit diameter, anastomotic location, and mediastinal route were variable. Gastric outlet obstruction (GOO) was strictly defined to include patients with clinical and radiographic delayed gastric emptying requiring intervention.

Results. Gastric outlet obstruction was found in 22% (98 of 436) of patients who underwent esophagectomy. Pyloromyotomy was performed on 52% (51 of 98) of these patients and employed in 41% (179 of 436) of patients in the entire cohort. GOO was present in 28% (51 of 179 of patients who underwent a pyloric drainage procedure compared with 18% (47 of 257) of patients with no pyloric intervention ($p = 0.01$). Endoscopic balloon dilatation of the pylorus was used to treat 39% (38 of 98) of patients with delayed gastric emptying yielding a 95% (36 of 98) success rate. Pyloric dilatations were performed with controlled radial expansion esophageal balloon dilators (range,10 to 20 mm). The remaining patients were treated conservatively with prokinetics, nasogastric drainage, or observation. Nasogastric drainage was employed for 7.4 ± 4.4 days in patients with GOO and 6.8 ± 4.0 days in asymptomatic patients ($p = 0.13$). Neoadjuvant chemoradiotherapy did not contribute to increased incidence of GOO. There was a significant difference in postoperative pneumonia (18.4% vs 10.6%, $p = 0.03$) and median length of hospital stay (12 ± 16 vs 10 ± 9 days, $p < 0.0001$) in patients with GOO versus normal emptying.

Conclusions. Delayed gastric emptying after esophageal substitution with gastric conduit can be adequately treated with balloon dilatation of the pylorus despite an operative drainage procedure.

(Ann Thorac Surg 2011;91:1019–24)

Disfaji

Çok fazla sütür,sıkı sütür
Mukozaların karşılıklı gelmemesi
Anastomoz kaçağı
Uzun süre sıvı diyet

- %65
- %3-5 ciddi disfaji
- Etiyoloji; Striktür, skar kontraksiyonu,tümör nüksü — %3
- Williams ve ark. Endoskopik incelemede

Minumum: luminal açıklık >12 mm
Mild: luminal açıklık 9-12 mm — %48

Moderate : luminal açıklık 5-8 mm
Severe: luminal açıklık <5 mm — %52

- 2-5 arası endoskopik dilatesyonda %77 başarı oranı

Surg Endosc 2008;22(6):1470–6.

Reflü

%42 asit reflüsü
% 83 safra reflüsü
%47 kolumnar metaplazi remnant özofagus

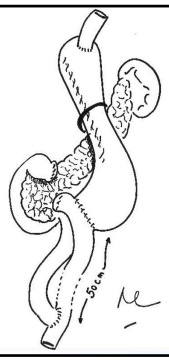
- Gastrik- duodenal reflü %60-80
- Wolfsen ve ark.
  - % 18 Barret saptamışlar remnant özofagusda
  - 1 hastada high grade displays
  - 2 hastada adenokarsinom
- Etioloji
  - Doğal antireflü mekanizmalarının ortadan kaldırılması
  - Torokoabdominal basınç gradiyenti
  - Pilorik drenaj prosedürleri
  - Anastomozun tipi (Kolon interpozisyonu)
- Tedav
  - PPI
  - Prokinetik ajanlar
  - Endoskopik takip

Am J Gastroenterol 2005;100(5):1021–7.
BMC Gastroenterol 2004;4:18.

Surgery Open Digestive Advance

Original Article

Roux-en-Y loop for gastro-esophageal reflux after esophagectomy with gastric pull-up for esophageal cancer



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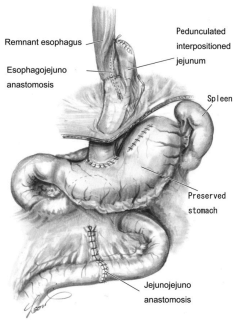
Jejunal interposition reconstruction with a stomach preserving esophagectomy improves postoperative weight loss and reflux symptoms for esophageal cancer patients



ulusal CERRAHİ ONKOLOJİ KONGRESİ

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Diyafram hernisi

- Neoözofagus için artifisiyal oluşturuluyor
- Price ve ark. 2182 hastanın incelendiği çalışmada 15 hastada (%0.7)
- Trahshiyatal ve transtorasik arasında insidans açısından fark yok
- 14 hasta transabdominal, 1 hasta sol torakotomi
- Ortalama herni görülme süresi 21 ay ilk op sonrası
- Hastanede kalış süresi 10 gün, %60 morbidite
- Kent ve ark. MİS de daha fazla görülüyor !!!!!!!!!

Ann Thorac Surg 2011;92(6):2041–5.
Ann Thorac Surg 2008;86(3):975–83