

# 30. Münchener Gefässgespräch 2019

## Sutton-Syndrom

David Sutton and Geoffrey Lawton Clin Radiol 1973;24:49-53

### COELIAC STENOSIS OR OCCLUSION WITH ANEURYSM OF THE COLLATERAL SUPPLY

In stenosis or occlusion of the coeliac axis artery (coeliac compression syndrome), anastomotic collateral channels, particularly via the pancreatico-duodenal system, become enlarged. Two cases where aneurysms developed in these collateral vessels are reported.

*Radiological Department, St. Mary's Hospital, London*

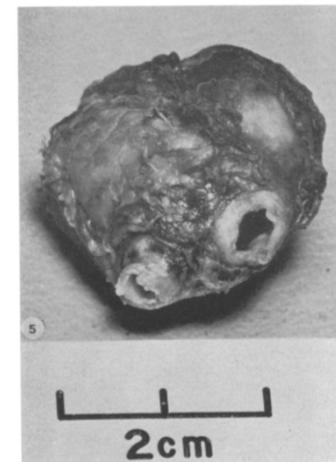
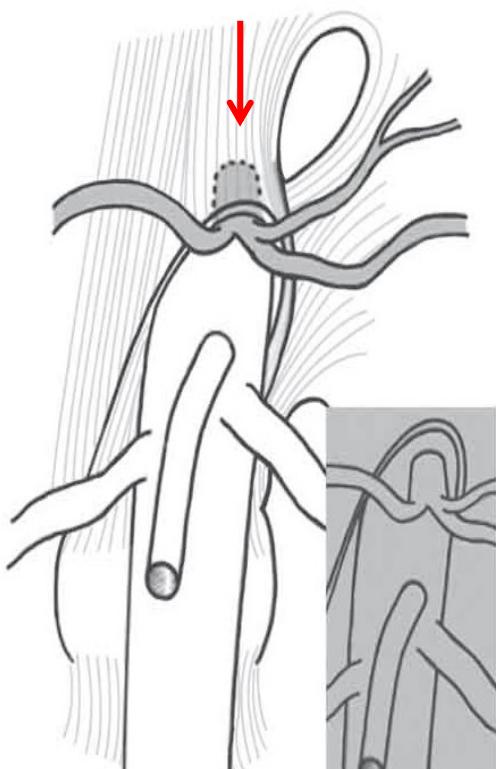


Abbildung aus der Original Publikation

## Kompressions-Syndrom des Truncus coeliacus

### DAS PHAENOMEN



C. Chivot et al. Eur J Vasc Endovasc Surg 2016



#### Erst-Beschreibung Pathologie 1917

Lipshutz B Ann Surg 1917;65:159

#### Case-Report 1963

Harjola PT Ann Chir Gynaecol Fenn 1963;52:547

#### Compressions-Syndrom 1965

Dunbar JD AJR 1965;73:744

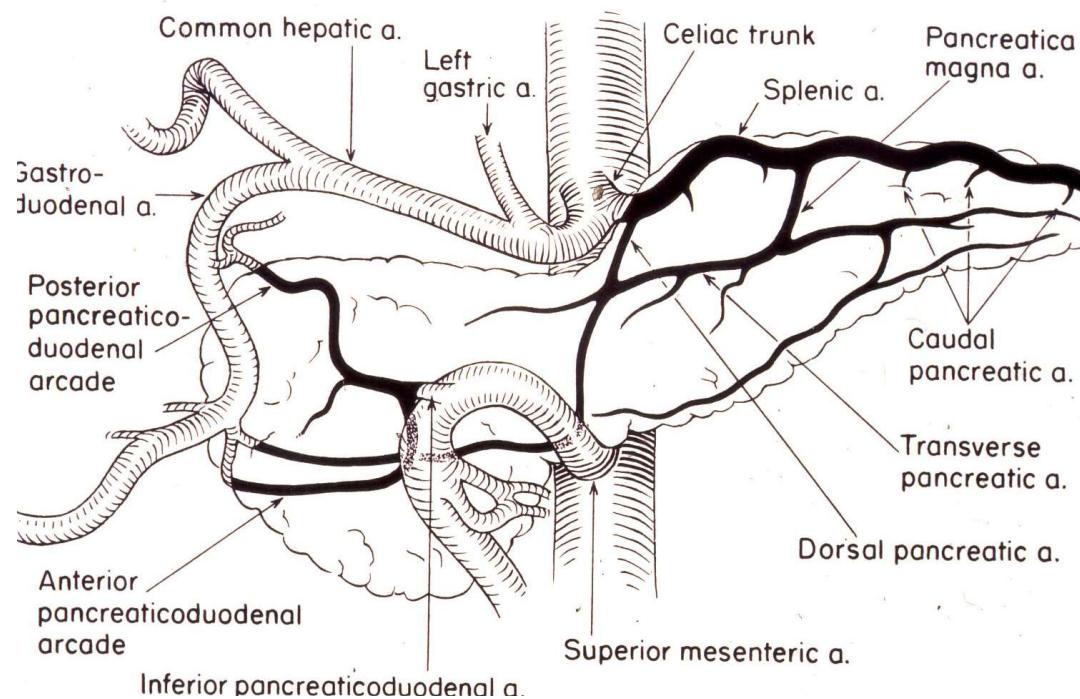
#### Hämorrhagie Risiko 1973

Sutton D Clin Radiol 1973;24:49

# Kompressions-Syndrom des Truncus coeliacus

## Entwicklung des sog. Sutton-Syndrom

### Prae-existente arterielle Kollateralversorgung



# Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management

## Prävalenz der arteriellen Pathologie

**Imaging (CT, MRT, US)**

**10 - 24%**

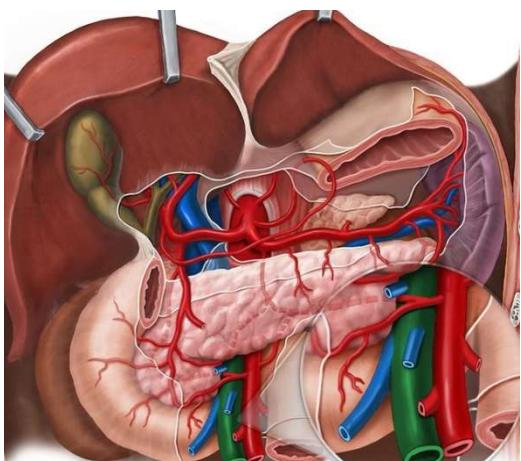
Gruber H et al Ultrasound of the median arcuate ligament syndrome: a new approach to diagnosis. Med Ultrason 2012;44:277-281

Horton KM et al MALS: Evaluation with CT angiography. Radiographics 2005; 25:1175-1182

**Angiographie (Stenosegrad >50%)**

**7,3% (>10%)** Eigene Einschätzung

Park JH et al Celiac axis stenosis: incidence and etiologies in asymptomatic individuals. *Korean J Radiol.* 2001;2:8-13



# **Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management**

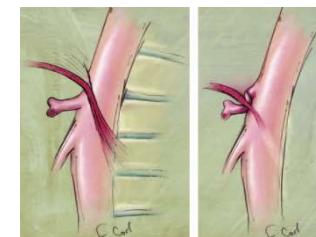
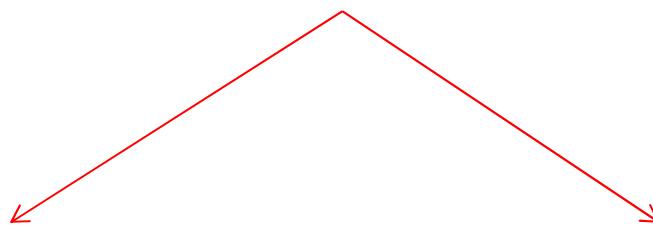
**DAS SYNDROM**

# Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management

## Pathophysiologie und klinische Signifikanz



Neuro-pathologie



Vaskulo-pathologie

Stimulation ganglion coeliacum mit afferenter sympathischer Schmerzleitung und konsekutiver intestinaler Ischämie

Signifikante arterielle Stenosierung/Verschluss des Tr.coel. mit konsekutiver intestinaler Ischämie

**Symptomen-Komplex:** Bauch- Oberbauchschmerzen (post-prandial?), Erbrechen, Diarrhoe, Gewichtsverlust  
3./4. Dekade  
4:1 weibliche Dominanz

**ANGINA ABDOMINALIS ?**

### Klinische Erstbeschreibung

Dunbar JD, Molnar W, Berman FF, et al. Compression of the celiac trunk and abdominal angina: preliminary report of 15 cases. AJM 1965;95:731

**Kompressions-Syndrom des Truncus coeliacus:  
Klinische Signifikanz und therapeutisches Management**

**HAEMORRHAGIE-RISIKO**

**sog. Sutton-Syndrom**

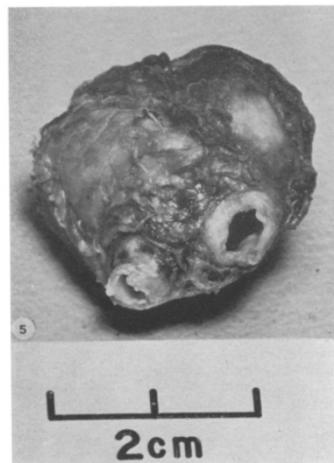


Abbildung aus der Original Publikation D.Sutton/Lawton G 1973

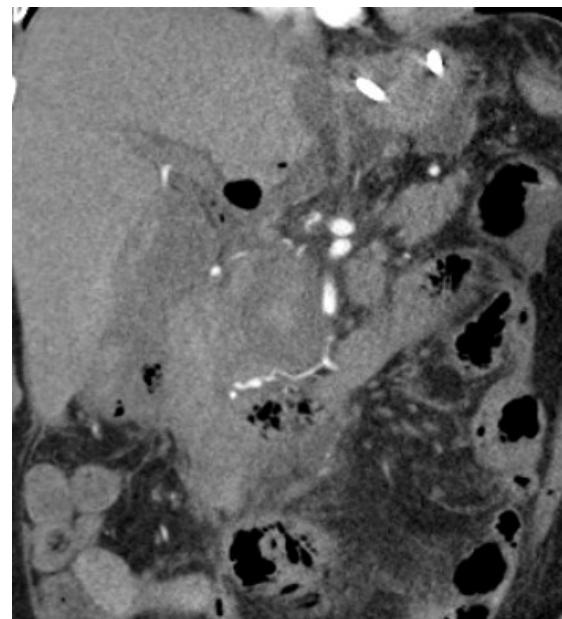
# Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management

## Hämorrhagie-Risiko

Aneurysmen der peri-pankreatischen Kollateralversorgung („Sutton“ syndrome)

### Eskalation der klinischen Präsentation

a-symptomatisches Aneurysma → aktive abd. Bltg...Embolisation → aktive abd. Bltg...“packing”



Sutton D, Lawton G Coeliac stenosis or occlusion with aneurysm of the collateral supply *Clin. RadioL* 1973;24:49-53

“In stenosis or occlusion of the coeliac axis artery (coeliac compression syndrome), anastomotic collateral channels, particularly via the pancreatico-duodenal system, become enlarged. Two cases where aneurysms developed in these collateral vessels are reported.”

# Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management

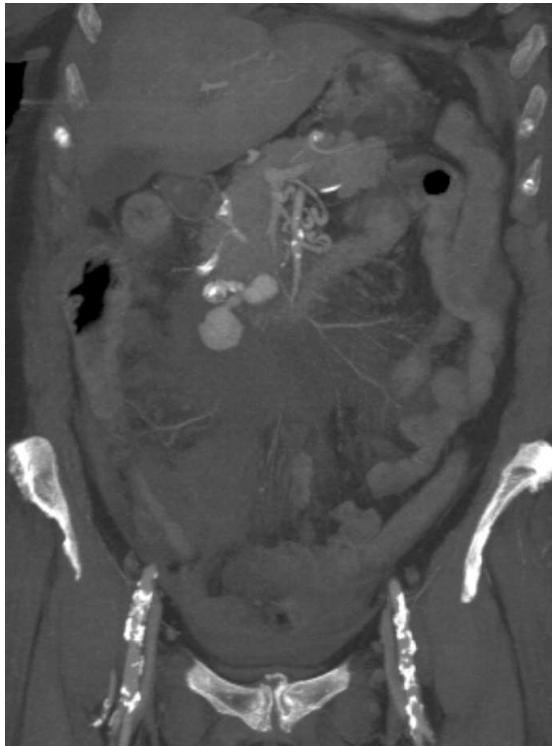
## Sutton-S: Hämorrhagie-Risiko

Patienten	Symptomatik	Obstruktion	Therapie	Truncus-Revask	follow-up
1983	akut	komplett	E.	nein	o.B
1934	akut	komplett	E.	nein	o.B
1941	akut	Komplett	E.	ja/Bypass	o.B
1957	akut	Stenose	E.	ja/Stent	o.B
1960	elektiv	komplett	Op.	ja/Bypass	o.B
1935	elektiv	Stenose	E.	ja/Stent	o.B
1969	elektiv	Stenose	E.	nein	o.B
2002	elektiv	Stenose	E.	Ja/LAP	o.B
1946	akut	Stenose	E.	ja/Stent	letal
1951	elektiv	komplett	Op.	ja/Bypass	o.B
1950	akut	Stenose	E.	ja	letal
1961	akut	Stenose	E.	ja/LAP	o.B
1954	elektiv	Stenose	E.	Nein	o.B

Michael Koehler, Moritz Wildgruber et al RöFO 2018; 190: 1–7  
 Median arcuate ligament syndrome – imaging presentation and interdisciplinary management

# Klinische Fall-Präsentation

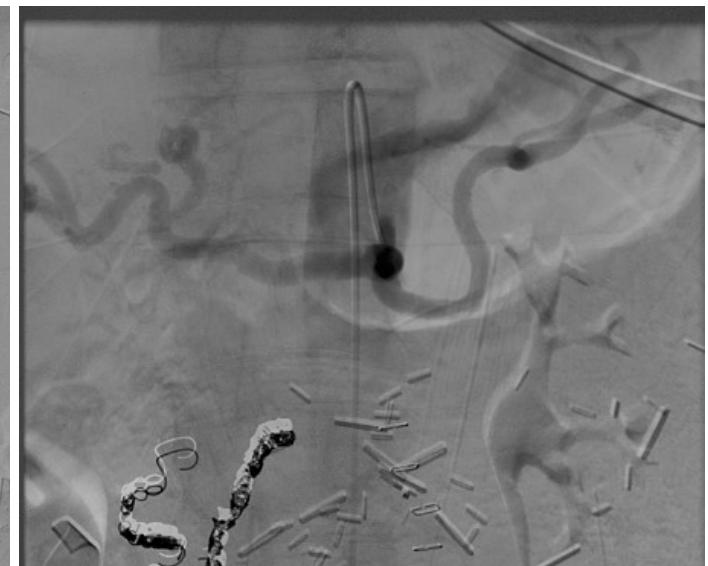
## Sutton-S: Hämorrhagie-Risiko



63 Jahre: akute abdominelle Blutung .....Erstversorgung auswärtige Klinik  
Zuverlegung mit „packing“.....  
Embolisation der peripankreatischen Kollateralen, Truncus Revaskularisierung  
Multiorganversagen.....letaler Verlauf

# Klinische Fall-Präsentation

## Sutton-S: Hämorrhagie-Risiko



1950: Leberzirrh äthyltox. Child B, akute abd. arterielle Blutung,  
Embolisation der peripankreatischen Kollateralen, Truncus Revaskularisierung

# Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management

## Literatur Sutton-S Hämorrhagie-Risiko

**Table 2.** Major series of pancreaticoduodenal artery aneurysms associated with celiac artery stenosis caused by the median arcuate ligament.

First author	Age (y)	Sex	Presentation	Size of aneurysm (mm)	Final treatment	Treatment of celiac stenosis	Follow up (mo)	Outcome
Proud <sup>3</sup>	32	F	Not ruptured	MD	MD	MAL Section	12	Favorable
de Perrot <sup>14</sup>	58	MD	Ruptured	12.0	Pancreaticoduodenectomy	No	NS	Favorable
	73	MD	Ruptured	9.0	Pancreaticoduodenectomy	MAL section	NS	Died
	66	MD	Ruptured	8.0	Pancreaticoduodenectomy	No	NS	Favorable
	67	MD	Ruptured	8.0	Failed embolization then ligation	No	NS	Favorable
Bageacu <sup>18</sup>	55	MD	Ruptured	15.0	Embolization	Bypass	89	Favorable
	43	MD	Ruptured	20.0	Embolization	Bypass	78	Favorable
	51	MD	Ruptured	18.0	Embolization	Bypass	27	Favorable
Murata <sup>6</sup>	58	M	Ruptured	32.0	Failed embolization then surgery	No	27	Favorable
Sugiyama <sup>17</sup>	57	F	Ruptured	8.0	Embolization	No	MD	Favorable
	65	M	Not ruptured	20.0	Observation	No	MD	Favorable
	73	M	Ruptured	15.0	Observation	No	MD	Favorable
Ikeda <sup>16</sup>	66	F	Not ruptured	20.0	Embolization	No	6	Favorable
	46	F	Not ruptured	11.0	Embolization	No	6	Favorable
Suzuki <sup>15</sup>	55	F	Ruptured	9.0	Embolization	No	28	Favorable
	60	F	Ruptured	5.0	Embolization	No	MD	Favorable
	79	M	Ruptured	8.0	Embolization	No	MD	Favorable
	43	M	Ruptured	5.0	Embolization	No	MD	Favorable
	56	M	Ruptured	3.0	Embolization	No	MD	Favorable
	73	F	Ruptured	7.0	Embolization	No	MD	Favorable
Flood <sup>2</sup>	37	F	Not ruptured	2.0	Embolization	Stent	24	Favorable
	34	F	Not ruptured	2.3	No	Celiac bypass	12	Favorable
	47	M	Not ruptured	7.0	Embolization	Stent	12	Favorable
	52	M	Not ruptured	2.8	Embolization	No	36	Favorable
	32	F	Not ruptured	1.3	Embolization	No	48	Favorable
	28	F	Not ruptured	1.9	Embolization	No	12	Favorable
	26	F	Not ruptured	3.5	Embolization	No	12	Favorable
	42	F	Not ruptured	2.7	Embolization	No	36	Favorable
	47	M	Not ruptured	2.2	Spontaneous thrombosis	Stent	12	Favorable

size 1,3 – 20 mm

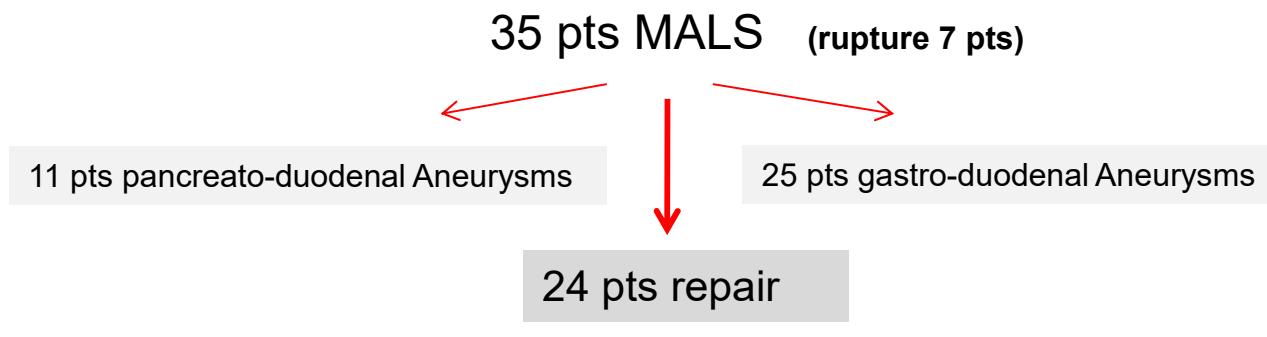
after laparoscopic MAL division **Revascularisierung 31%**

Note. M = male; F = female; MD = missing data; MAL = median arcuate ligament; NS = not specified.

# Kompressions-Syndrom des Truncus coeliacus: Klinische Signifikanz und therapeutisches Management

## **Sutton-S Hämorrhagie-Risiko**

Michael R. Corey, Emel A. Ergul, Richard P. Cambria, Virendra I. Patel, R. Todd Lancaster, Christopher J. Kwolek, and Mark F. Conrad.  
The presentation and management of aneurysms of the pancreaticoduodenal arcade  
J Vasc Surg 2016;64:1734-40.)



Morbidity/Mortality 29%/4%

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Endovascular	20 (83.3)
Transfemoral sheath access	14 (70.0)
Transbrachial sheath access	6 (30.0)
Aneurysm access via superior mesenteric artery	13 (65.0)
Aneurysm access via celiac axis	7 (35.0)
Coil embolization alone	16 (80.0)
Coil embolization and celiac axis stenting	3 (15.0)
Stent graft exclusion	1 (5.0)
Open	4 (16.6)
Suture ligation	2 (50.0)
Aneurysmectomy and primary repair	1 (25.0)
Aneurysmorrhaphy and median arcuate ligament release	1 (25.0)

## Zusammenfassung

- **Hohe Prävalenz der Stenosierung des Truncus coeliacus**
- **klinische Präsentation: Phänomen.....Desaster**
- **Cave! Aneurysmen in der Kollateralzirkulation (Größe irrelevant !)**
- **absolute Indikation zur Intervention (endovasc./Laparaskopie)**
- **Revaskularisierung Truncus coeliacus ??**
- **Cave! retro-peritoneale/peri-pankreatische Blutung**
  
- **Interventionelle Notfall-Versorgung!**

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