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台大醫學院202講堂

主講者：
曾屏輝 醫師

台大醫院 內科部暨健康管理中心 主治醫師

台大醫學院 臨床助理教授

演講大鋼

多年來在健檢中心和腸胃科門診發現，做大腸鏡時常看到息肉，那麼多健康的人來做也是有息肉，然而做超音波時也發現，脂肪肝的比例很高，讓我相當驚訝，所以，每次做完超音波時都會跟病人衛教飲食運動體重要多注意，後來發現很多銀行的員工來做健檢，體型不胖但都有脂肪肝合併脂肪胰。

代謝方面，診斷最確定的就是「糖尿病」，過去腸胃方面的研究，糖尿病和胃食道逆流、消化性潰瘍、胃輕癱(gastroparesis)、胃排空延遲等有關。然而肥胖和胃食道逆流也有相關。這些代謝性疾病跟腸胃會有什麼相關性，理論上和癌症有關之外，對糖尿病的人會不會影響藥物的吸收，血糖的控制，甚至吃不下影響營養方面問題，這個部分值得我們深入進一步的研究。

當胃排空的時間延遲時，將發生「胃輕癱(gastroparesis)」。正常蠕動情況下，神經信號會告訴胃部肌肉收縮的時間，這些肌肉將食物從胃移動到十二指腸，胃輕癱時，神經或肌肉被損壞，導致腸蠕動減慢或完全停止，因此，食物無法從胃裡正常移出。嚴重的症狀，如噁心、嘔吐、吃飯時很快感到飽足感、腹脹。為確認問題，需進行的檢查包括胃排空掃描、上胃腸道攝影、核磁共振。患病率為糖尿病患者的5-12%，此問題經常被忽視。

胃食道逆流是台灣正在出現的一個新問題，在健檢的內視鏡中發現西元2003年到2006年有15.7%，西元2009年有29.2%。係指賁門括約肌功能障礙，或腹內壓升高引起胃內酸性內容物逆流至食道所引起的結果。這些人常和三高、生活方式、飲食、肥胖、抽菸、喝酒、幽門螺旋桿菌有關。肥胖和胃食道逆流有很大的相關因素，其他因素有：裂孔疝氣、增加胃內壓力、胃容量受損、下食道括約肌功能障礙、荷爾蒙變化。臨床的患者常主訴「感覺喉嚨有液體出來」，嚴重者會影響睡眠。許多人因為症狀輕微，罹患胃食道逆流以為吃個電視廣告的胃藥就好了，導致食道長期被胃酸侵蝕，久了為了適應強酸的環境而產生變性，即所謂的「巴瑞特氏食道」Barrett's esophagus，它是食道腺癌的癌前病變。
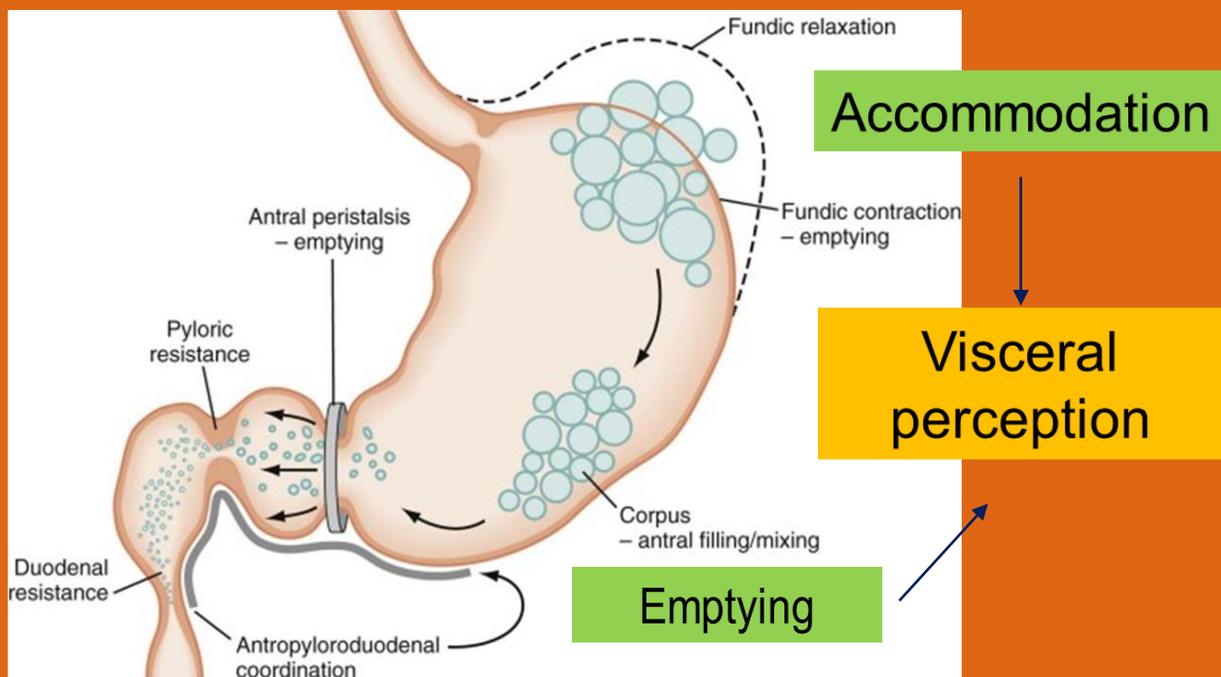
胃排空，指食物由胃排入十二指腸的過程，不同食物的排空速度是不相同，在台大醫院做是喝一包燕麥片來測半小時、一小時、兩小時、三小時。許多疾病能引起胃排空減慢，如胃潰瘍、糖尿病引起的胃輕癱等。

食道壓力檢查，從鼻子放一條0.4公分的管子，管子上有刻度可以測壓力，主要用來評估食道的蠕動功能和下食道括約肌的壓力。藉由食道壓力檢查，可以明確看到裂孔疝氣，食道的收縮功能。

目前正進行的是和解剖所謝教授合作在胃腸道運動障礙和症狀的感覺神經，不但看糖尿病，還有楊博仁醫師的病態性肥胖的患者，術前術後做食道壓力檢查，當然，更早之前是建立動物研究。

腸胃道和代謝方面相關，其實，兩者中間的關係相當複雜，我們常用臨床來驗證。

Gastric motility/physiology


Koch KL. Physiological basis of electrogastrography

檢查項目	Gastric emptying time - Semisolid			報告時間	2017/07/30

報告內容

NUCLEAR MEDICINE STUDY: Gastric emptying time study
RADIOPHARMACEUTICAL: 1.0 mCi Tc-99m DTPA (diethylenetriamine pentaacetic acid) in oatmeal (1 pack with 200 mL water) per Os within 20 minutes.
SCANNING PROTOCOL: 30 sec/frame for 60min , then static images at 2nd, and 3rd hrs (from LAO 30 degree for 30sec).
CLINICAL HISTORY: Suspect familial amyloid polyneuropathy, for GI evaluation.
SCINTIGRAPHYIC FINDINGS:
In supine position, the gastric emptying time study showed:
* During the first 60 minutes, the estimated time of half emptying (T1/2) of stomach is 550.79 minutes (normal 52.9 ± 34.4 minutes).
* During the overall 180 minutes, the time of half emptying (T1/2) of stomach is 399.82 minutes. (normal 51.8 ± 13.8 minutes).
* During the first 60 minutes, the estimated time of half emptying (T1/2) of gastric fornix is 70.10 minutes.
* The 1st-hour transit is 10%.
* The percentage of tracer remained in the stomach after
- 30th minutes residual is 94%. (normal 63.6 ± 14.3%)
- 1st-hour residual is 90%. ((normal 41.5 ± 14.0%))
- 2nd-hour residual is 69%. (normal 9.3 ± 7.8%)
- 3rd-hour residual is 63%. (normal 2.0 ± 2.4%)

Reference values from healthy volunteers were listed below (Tseng PH et al. J Gastroenterol Hepatol 2014):
* The upper (95th percentile)
and lower (5th percentile) limits were:
- 0.5h gastric retention values: 88% and 35%
- 1 hr gastric retention values: 65% and 16%
- 2 hr gastric retention values: 28% and 1%
- 3 hr gastric retention values: 8% and 0%.

Impression

GET after 30th minutes residual: 94%, 1 hour residual: 90%, 2 hour residual: 69%, 3 hour residual: 63%. Severely prolonged gastric emptying time was noted.

報告醫師	鄭媚方		PACS影像	開啟PACS影像	開啟PACS影像(Mobile)		顯示修改記錄 ☐

Morbid obesity and gastric emptying

33 male, BMI: 54.6, DM
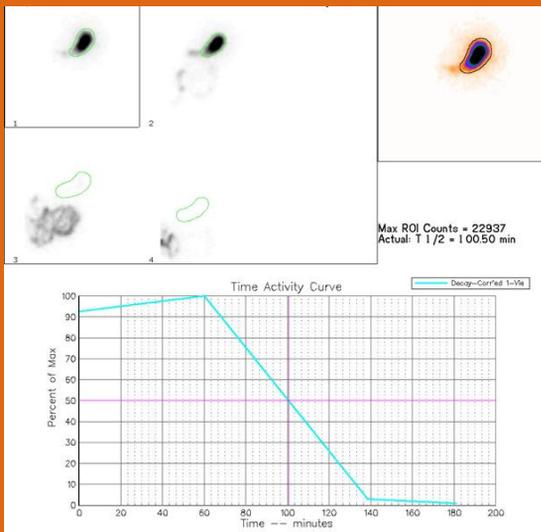
T1/2: 100.5 min
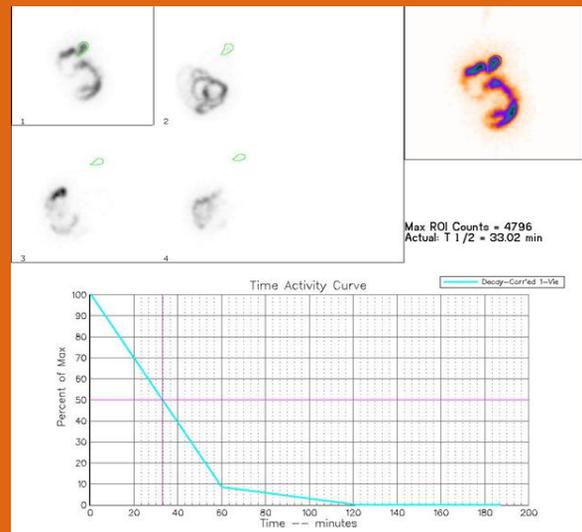
T1/2: 33.0 min

曾屏輝醫師和楊偉勛教授一起研究發表的論文

Association of Esophageal Inflammation, Obesity and Gastroesophageal Reflux Disease: From FDG PET/CT Perspective

Yen-Wen Wu[1,2,3,4], Ping-Huei Tseng[1,5], Yi-Chia Lee[1,7], Shan-Ying Wang[3], Han-Mo Chiu[1], Chia-Hung Tu[1], Hsiu-Po Wang[1], Jaw-Town Lin[8,9], Ming-Shiang Wu[1], Wei-Shiung Yang[1,5,6]*

- Esophageal inflammation demonstrated by FDG PET/CT correlates with endoscopic findings and symptomatology of GERD.

- Obesity markers, both visceral and general, are independent determinants of esophageal inflammation.

PLoS One. 2014 Mar 18;9(3):e92001

Associations of Circulating Gut Hormone and Adipocytokine Levels with the Spectrum of Gastroesophageal Reflux Disease

Ping-Huei Tseng[1,2], Wei-Shiung Yang[1,2,3], Jyh-Ming Liou[1], Yi-Chia Lee[1], Hsiu-Po Wang[1], Jaw-Town Lin[1,4,5], Ming-Shiang Wu[1]*

	GERD (n = 104)	Control (n = 50)	P*
Age, yr	45.6 ± 12.8	44.4 ± 12.9	0.584
Male gender, n (%)	31 (29.8%)	25 (50.0%)	0.02*
BMI, kg/m^2	22.4 ± 3.0	22.8 ± 2.6	0.397
Abdominal girth, cm	79.9 ± 9.9	83.7 ± 11.4	0.093
Hip girth, cm	94.7 ± 7.1	97.7 ± 10.3	0.096
H. pylori infection, n (%)	28 (26.9%)	0	-
Fasting blood glucose, mg/dL	84.9 ± 11.9	89.2 ± 19.2	0.145
Triglycerides, mg/dL	106.9 ± 58.9	119.6 ± 62.1	0.132
Total cholesterol, mg/dL	205.5 ± 43.8	216.9 ± 43.3	0.223
Peptide hormones			
Ghrelin, pg/mL	162.4 (82.0–240.4)	160.5 (81.8–258.9)	0.647
PYY, pg/ml	80.1 (49.8–108.3)	99.4 (65.8–131.9)	0.057
Adiponectin, µg/mL	9.0 (6.8–11.1)	7.7 (6.3–9.5)	0.087
Leptin, ng/mL	8.4 (5.1–12.8)	7.7 (4.4–13.3)	0.427

Patients with Barrett's esophagus appeared to have lower adiponectin levels and lower ghrelin levels than those without BE
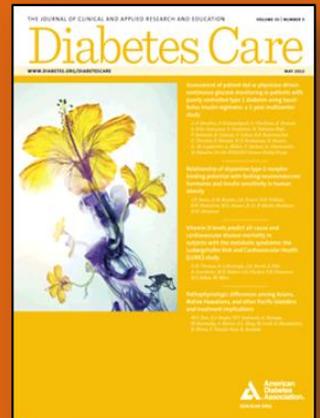
曾屏輝醫師和楊偉勛教授一起研究發表的論文

Epidemiology/Health Services Research
ORIGINAL ARTICLE

Association of Diabetes and HbA$_{1c}$ Levels With Gastrointestinal Manifestations

PING-HUEI TSENG, MD[1,2]
YI-CHIA LEE, MD, PHD[1,3]
HAN-MO CHIU, MD, PHD[1]
CHIEN-CHUAN CHEN, MD[1]

WEI-CHIH LIAO, MD, MSC[1]
CHIA-HUNG TU, MD, MSC[1,3]
WEI-SHIUNG YANG, MD, PHD[1,2,4]
MING-SHIANG WU, MD, PHD[1]

American Diabetes Association.

THE JOURNAL OF CLINICAL AND APPLIED RESEARCH AND EDUCATION
Diabetes Care
WWW.DIABETES.ORG/DIABETESCARE

OBJECTIVE To determine the prevalence of gastrointestinal (GI) manifestations associated with diabetes mellitus (DM) in a Taiwanese population undergoing bidirectional endoscopies.

RESEARCH DESIGN AND METHODS Subjects voluntarily undergoing upper endoscopy/colonoscopy as part of a medical examination at the National Taiwan University Hospital were recruited during 2009. Diagnosis of DM included past history of DM, fasting plasma glucose ≥126 mg/dL, or glycated hemoglobin (HbA(1c)) ≥6.5%. Comparisons were made between diabetic and nondiabetic subjects, subjects with lower and higher HbA(1c) levels, and diabetic subjects with and without complications, respectively, for their GI symptoms, noninvasive GI testing results, and endoscopic findings. **RESULTS** Among 7,770 study subjects, 722 (9.3%) were diagnosed with DM. The overall prevalence of GI symptoms was lower in DM subjects (30.3 vs. 35.4%, P = 0.006). In contrast, the prevalence of erosive esophagitis (34.3 vs. 28.6%, P = 0.002), Barrett's esophagus (0.6 vs. 0.1%, P = 0.001), peptic ulcer disease (14.8 vs. 8.5%, P < 0.001), gastric neoplasms (1.8 vs. 0.7%, P = 0.003), and colonic neoplasms (26.6 vs. 16.5%, P < 0.001) was higher in diabetic subjects. Diagnostic accuracy of immunochemical fecal occult blood test for colonic neoplasms was significantly decreased in DM (70.7 vs. 81.7%, P < 0.001). Higher HbA(1c) levels were associated with a decrease of GI symptoms and an increase of endoscopic abnormalities. Diabetic subjects with complications had a higher prevalence of colonic neoplasms (39.2 vs. 24.5%, P = 0.002) than those without.

CONCLUSIONS DM and higher levels of HbA(1c) were associated with lower prevalence of GI symptoms but higher prevalence of endoscopic abnormalities.
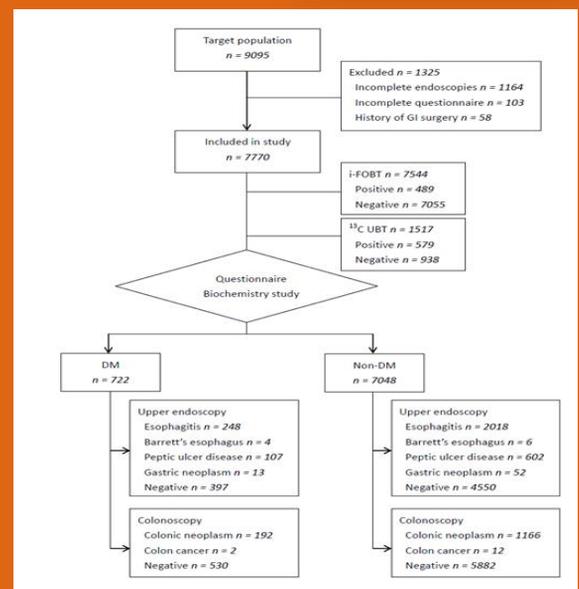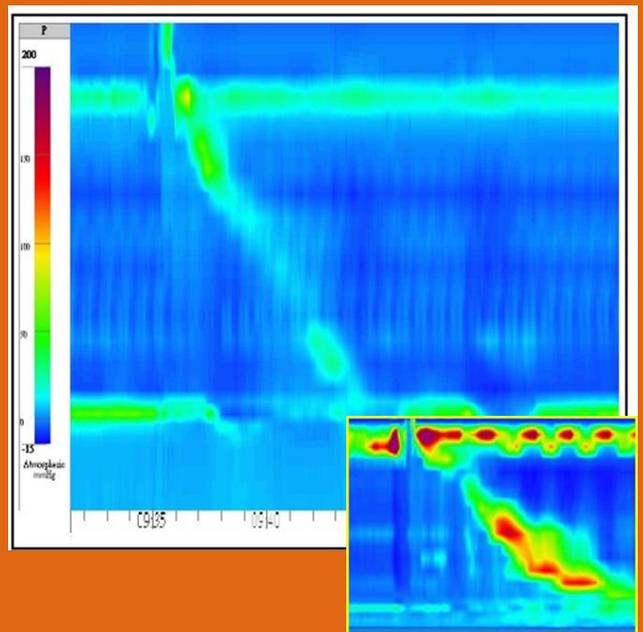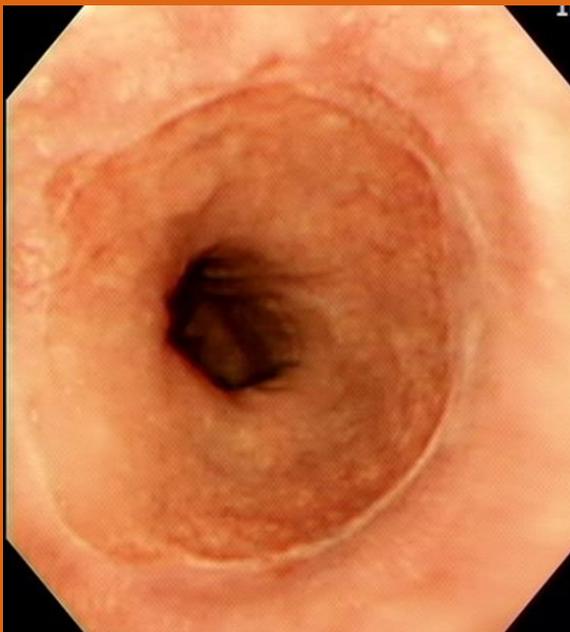
High resolution manometry (HRM)
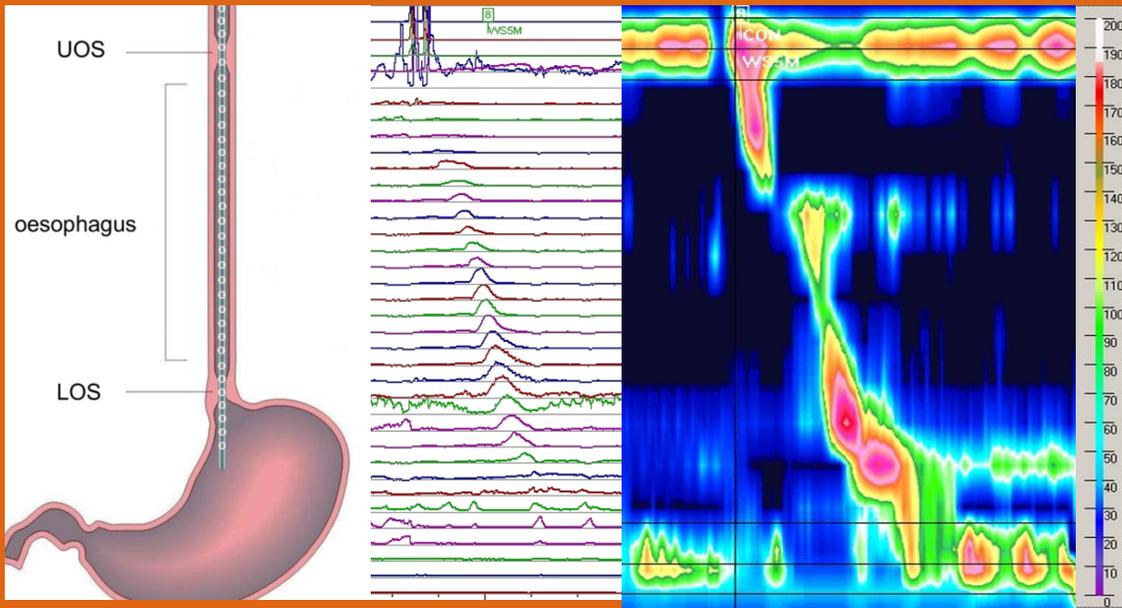
More channels: 4~8 -> 22~36
Replace pressure levels by colors(esophageal pressure topography, EPT)

Morbid obesity and esophagus

44 male, BMI: 39.7

Hiatal hernia
Reflux esophagitis, LA Gr.A

100% failed contractions (DCI<100) !!
Absent contractility