

in UC. The observed discrepancy between UC and CD is consistent with the conclusion that smoking plays an important role in the clinical presentation and possibly the pathophysiology of CD.

98 Smoking Habits in Incident Cases of Inflammatory Bowel Disease (IBD) in South-Eastern Norway 1990–1992

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Since the relationship between non-smoking and ulcerative colitis (UC) was first reported by Harries in 1982 there has been many studies evaluating the relationship between Crohn's disease (CD) and smoking.

In a prospective incidence study of IBD, 336 cases of UC and 158 cases of CD between 15 and 75 years of age at the time of diagnosis were interviewed on smoking habits. In patients with UC 14% were smokers compared to 41% in CD patients ($p < 0.0001$).

The proportion of ex-smokers (cessation of smoking before onset of symptoms) in patients with UC was 27% which was much more frequent than in patients with CD where only 14% reported an ex-smoking status. In patients with UC the smoking cessation took place within one year before diagnosis in 23%, between 1–5 years in 32% and after more than 5 years prior to diagnosis in 45%.

Smoking habits in UC and CD were compared with a random sample of the Norwegian population in different age groups. Non-smoking status was significantly more common in men with UC ($p < 0.001$) but not in females. In CD smoking status was significantly more common among females ($p < 0.05$) but not in males.

In an age and sex-matched case-control study smoking was a significantly protective factor against UC (odds ratio (OR) = 0.24; 95% confidence interval (CI) 0.14–0.40) whereas in CD smoking entailed a non-smoking increased risk (OR = 1.53; 95% CI 0.83–2.81).

Conclusion: We were able to confirm a significantly inverse relation between smoking and UC in men and a significantly increased risk among smoking females for CD.

99 A Development of Ultrasonography in Staging Esophageal Cancer

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Recently several types of ultrasonic probes have been developed. In staging esophageal cancer, these probes made improvement in accuracy of diagnosis of staging esophageal cancer. The aim of this study how to use these probes and how accurate diagnosis of staging esophageal cancer can be made by these new probes. In 328 patients with esophageal cancer, preoperative staging was made by conventional endoscopic ultrasonography (EUS) and new type of probes: (E-probe: radial scan, 8 mm in diameter, 7.5 MHz, sonoprobe system: radial/linear types, 2.6 mm in diameter, 15 or 20 MHz). These probes are used during filling water or balloon inflated by deaerated water. These US findings were compared with histological findings. Result: 1 The total observation rate which means the probe pass through cancer was improved from 60% by EUS only to 80% by EUS and these probes. 2 In depth of cancer invasion, Tis cancer was correctly determined in 50%, T1 cancer in 86%, T2 in 68%, T3 in 91% and T4 in 100%. 3 Based on the criteria of metastasis, such as lymph node with spherical shape, distinct border and heterogeneous internal echo, sensitivity was 85%, specificity was 91% and overall accuracy was 90%. Those accurate staging made select adequate treatments.

100 Video Documented Endosonographic Identification of the Coeliac Trunk Area in the Preoperative Assessment of Resectability in Gastroesophageal Cancer

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Several studies have stated the superiority of endoscopic ultrasonography (EUS) in the preoperative TN-staging and assessment of resectability in gastroesophageal cancer (GEC), but the actual visualization rate of the important area around the coeliac trunk and the presence or absence of local tumor infiltration and/or lymph node metastases in that area have not been paid the necessary attention.

We prospectively evaluated (1) the EUS identification rate (video documented) of the coeliac trunk including side branches (2) the preoperative EUS assessment of resectability in GEC, and (3) the importance of EUS detected

tumor/lymph node involvement around the coeliac trunk in matters of curative resectability.

Preoperative EUS was performed in 85 consecutive patients with GEC.

A videorecorded, colour doppler documentation of the coeliac trunk with branches was obtained in 70 patients (82%). In 12 patients (14%) visualization failed because of impassable tumor stenosis and in three patients (4%) because of technical problems. Sixty-two patients were operated and preoperative endosonographic assessment of resectability proved right in 54 patients (87%). Thirty-three patients (53%) were nonresectable and in 22 cases (67%) this was due to malignant infiltration in the area of the coeliac trunk. Regarding the detection of this infiltration, EUS made a correct preoperative statement in 21 cases (95%); – assessment failed in one patient because of impassable tumor stenosis.

In conclusion, EUS seems highly efficient in the preoperative visualization of the coeliac trunk and its branches and in the assessment of tumor and/or lymph node involvement in that area.

A video showing the endosonographic identification and interpretation of the coeliac trunk area is presented.

101 Surface-Sonographic Assessment of Two Main Clinical Types of Gastroduodenitis (Hypertonic-hyperacid and hypotonic-hypoacid)

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Purpose of the Study: Following the observation that the secretory and motoric functions as well as tonicity of the stomach show certain correlation in the two main clinically tractable forms of gastritis investigation was carried out to find the characteristic ultrasonographic patterns of these conditions.

Patients and Methods: There were 460 patients with gastric complaints involved in the study. Ultrasonography was the first examination. The analysis of the gastric content was carried out in 433 patients, barium meal and/or endoscopy were performed in 372. All were treated on the basis of clinical-sonographic assessment and "ex iuvantibus" therapeutic results were also considered.

Results: The first column displays the results in ultrasonographically "spastic" (hypertonic) *gastroduodenitis*. These patients were treated as hyperacid ones. The second column represents the values obtained in "mucous" (hypotonic) *gastroduodenitis*. These patients were treated as hypo acid ones.

Ultrasonography	spastic	mucous
Test meal	Acidity 100/120	10/20
	Mucus 0-	+++++
	Lactate neg	neg
	Blood 0-	neg
	Helicobact rarely pos.	often pos.
Radiography	spastic, fast emptying.	ptosis, slow emptying.
Endoscopy	spf. gastritis, erosions, rough plicae.	"mucous" atrophy, few erosions.
Therapeutic Effect	good	fair

Conclusion: Comparing the complaints, lab., radiol., endoscopic data and the effect of therapy to the improvements of the sonographic phenomena it seems obvious that the features and motion patterns observed in surface sonography correspond well with the traditional classification (hyperacid, hypo-anacid) of gastroduodenitis.

102 CD-ROM (Compact Read Only Memory) for Didactic Endoscopy

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At present videotapes represent the ideal technological means for discussing endoscopic topics. Nevertheless, although its communicative value at congresses is doubtless, as a didactic product it has some weak points: a) the Author puts the contents into a logical order, without considering the personal need of the viewer; b) the continuity of the film could limit comprehension since the viewer may only be interested in certain parts of the film; c) good quality "freeze pictures" are difficult to obtain, and inevitably the pause causes automatic interruption of the sound.

Over the last few years, our Unit of Endoscopy has realised the translation onto tape of the OMED Endoscopic Terminology by Professor Maratka, trying to overcome the problems by producing a prototype CD-ROM for endoscopy. Using the first two films of the OMED Terminology (Fundamental Terms and Definitions and Esophagoscopy) plus the best possible technological know-how available, we recorded moving video sequences with comments, texts, still pictures, drawings, sketches and x-rays.

The prototype was realised on a Macintosh Quadra 900, with video digitizer card (VideoSpigot) by Supermac, which can transform analogic data into

a digital form in real time. The video sequences were digitalized and compressed using ScreenPlayer.

We are convinced that multimedia technology can radically modify endoscopic didactic programs. For this reason, we decided to program a series of CD-ROM for the teaching of digestive endoscopy, for the university faculties.

103 A Novel Method to Reduce Bloodloss in Radical Rectal Surgery for Cancer

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Radical excision of the rectum for cancer frequently is accompanied by considerable bloodloss, necessitating bloodtransfusions. This is especially the case when a bulky tumor is present or preoperative irradiation has been performed.

Using an ultrasonic surgical device (CUSA-CEM) and Argon Enhanced Electrosurgery (AEE) simultaneously bloodloss can be reduced thus avoiding adverse effects of bloodtransfusion (altered host v.s. tumor immune response, AIDS etc.) and hence of surgical trauma.

Twenty nine patients with different stages of rectal cancer and one patient with extended Crohn's disease of the rectum, complicated by multiple fistulas and pelvic inflammation have been operated with this technique. Basic principles of CUSA-CEM and AEE as well as specific features of the operative procedure are clearly shown in this video.

Results: Bloodloss did not exceed 600 ml. remaining beneath transfusion necessity. A no-touch type of rectal excision can be performed. Palliative possibilities dramatically increase using this method. Woundhealing and operative time do not differ from conventional methods.

Conclusions: Rectal excision using CUSA-CEM and AEE is a superior alternative to conventional techniques with respect to bloodloss, oncological surgical principles and palliative possibilities.

104 Heterotopic Liver Transplantation in the Rat

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Heterotopic or auxiliary liver transplantation (ALT) is an attractive alternative to the orthotopic liver transplantation and provide temporary support of a potentially reversible liver damage. One cause of the transplant failure is the inter-liver competition of the host liver and the graft for the use of hepatotrophic factors found in the portal blood. We have developed an experimental model of heterotopic partial liver isotransplant in the rat using a microsurgical technique so as to study the inter-liver competition.

The auxiliary liver graft consists of the right lateral and caudate lobes. The donor hepatectomies reduce the graft mass, facilitate the recipient operation and diminish the complications secondary to the graft's revascularization. The cuff technique for the portal vein anastomosis not only simplifies the microvascular anastomosis but also shortens the portal hypertension in the recipient from an average of 15 minutes when the suture anastomosis is used to approximately seven minutes when our technique is used. The venous drainage by the infrahepatic inferior vena cava prevented the graft congestion and increased the post-operative survival rate that had occurred when we used the suprahepatic venous drainage. The bile duct was passed into the duodenum of the recipient and fixed to the wall by a simple stitch.

The graft liver was vascularized with blood from the portal vein and the liver of the recipient was only vascularized arterially. As the graft underwent regeneration during the first 30 days of the postoperative period, it may be considered that the partial heterotopic transplant of the liver supports the hepatic function.

105 Endothelin-1 and -3 in Cirrhosis. Relations to Systemic and Splanchnic Haemodynamics

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Endothelins [ETs] are recently described isopeptides with potent vasoactive properties. Whereas increased plasma concentrations in cirrhosis have been described previously, the implications of this potent vasoconstrictor system in the hyperkinetic syndrome in cirrhosis is still obscure. Therefore, the aim of this study was to assess hepatic venous and arterial plasma concentrations of ET-1 and ET-3 in relation to splanchnic and systemic haemodynamics in cirrhosis and compare the results with control groups. Liver vein catheterization was performed in a group of cirrhotic patients [N = 42], hypertensive controls [N = 8], and normotensive controls [N = 10]. Concentrations of ET-1 and ET-3 were measured in samples obtained simultaneously from liver vein and femoral artery. Hepatic venous ET-1 concentrations (mean with s.e.m.) were significantly higher in cirrhotic patients, 21.2 (0.9) pg/ml versus 12.4

(2.4) pg/ml and 9.6 (1.6) ng/ml in the hypertensive and normotensive controls, respectively [p < 0.00001]. Arterial values were 19.6 pg/ml (0.7), 14.4 pg/ml (1.1), and 11.1 pg/ml (1.3) respectively [p < 0.00001]. Hepatic venous concentrations of ET-1 were significantly correlated to the wedged hepatic venous pressure gradient (R = 0.61, p < 0.00005), diastolic blood pressure (R = -0.31, p < 0.05), central blood volume (R = -0.36, p < 0.05), central circulation time (R = -0.41, p < 0.02), plasma volume (R = 0.50, p < 0.01), serum sodium (R = -0.56, p < 0.0002) and serum creatinine (R = 0.35, p < 0.02). ET-3 concentrations in hepatic vein from cirrhotic patients [N = 23] were also elevated: 19.0 pg/ml (1.4) compared with hypertensive controls: 14.2 pg/ml (1.3) and normotensive controls: 10.0 pg/ml (1.4) [p < 0.002]. Corresponding arterial concentrations were 18.1 pg/ml (1.5), 14.4 pg/ml (1.1), and 11.1 pg/ml (1.3) respectively [p < 0.01]. In the cirrhotic patients, ET-3 was significantly correlated with clotting factors (R = -0.53, p < 0.01), bilirubin (R = 0.53, p < 0.01), Child score (R = 0.43, p < 0.05), galactose elimination capacity (R = -0.59, p < 0.01) and, central blood volume (R = -0.55, p < 0.02).

In conclusion ET-1 and ET-3 are increased in cirrhosis compared with matched controls. The ET concentrations in seem to be closely related to the haemodynamic disturbances and ET may be implicated in the portal and systemic haemodynamic abnormalities seen in cirrhosis, although ET-1 and -3 may play different roles. The increased circulating ET level may, in part, be due to an increased hepato-splanchnic release.

106 The Effect of Alcohol Abstinence and Abuse on Portal Vein Hemodynamics in Nutritional-Toxic Liver Cirrhosis

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The influence of alcohol abstinence and abuse on portal vein hemodynamics was assessed in 50 patients all with histologically and through laparoscopy proven nutritional toxic liver cirrhosis by different Child-Pugh stages. During the observation period, hepatic wedged vein pressure was repeatedly determined and the size of oesophageal varices and the Child-Pugh stage were monitored.

The interval of examination in alcohol abstinence was 12 ± 6 months. In repeated alcohol abuse the examination was performed after 10 ± 3 months. 10 patients were under long-term observation.

Results: After alcohol abstinence hepatic wedged vein pressure decreased by -43% (p < 0.001), oesophageal varices by 27% (p ns) and Child-Pugh by 7% (p ns). After resuming alcohol abuse, hepatic wedged vein pressure increased by 60% (p < 0.001) to its previous level. On the contrary, compared with an absolutely alcohol carent group (n = 21) of posthepatic liver cirrhosis, hepatic wedged vein pressure, oesophageal varices and Child-Pugh remained unchanged during 12 ± 6 months.

Conclusions: Alcohol is influencing the portal vein hemodynamics. Alcohol carence is inducing a significant decrease of portal vein pressure, alcohol abuse is inducing a significant increase of it. The conduct of portal vein pressure is reversible and is determined by two factors: quantity of alcohol and duration of abuse. It has thus proved to be a sensitive gauge of alcohol abstinence or abuse. Lasting absolute alcohol abstinence is essential in nutritional toxic liver cirrhosis.

107 Effect of Propranolol on Portosystemic Collateral Circulation Evaluated by Pre-rectal Portal Scintigraphy with Technetium-99m Perchnetate

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Background: Propranolol is the drug widely used in the prevention of variceal bleeding. However, in certain patients with cirrhosis portal hypotensive effect of propranolol cannot be obtained. An explanation for portal unresponsiveness to propranolol could be an increase in portocollateral vascular resistance mediated by this drug.

Material and method: 28 patients (15 men, 13 women) with cirrhosis were investigated. The diagnosis was made either histologically (n = 19) or was based on unequivocal laparoscopic image of the liver (n = 9).

The effect of propranolol chronic administration on blood distribution from the inferior mesenteric vein (expressed as shunt index) was examined by means of per-rectal portal Tc99m perchnetate scintigraphy.

Results: Propranolol significantly reduced shunt index by 17.6 ± 4.8%. This reduction was observed in cirrhotics belonging to groups Child-Pugh A (-33.6 ± 8.4%, p < 0.008) and B (-12.4 ± 5.7%, p < 0.05), but not in group C (-10.9 ± 13.3%, p = 0.5). The magnitude of response to propranolol did not correlate with baseline shunt index measurement.

Conclusions: 1. Propranolol changes the distribution of blood between portal and systemic circulation.

2. This effect is influenced by the severity of liver failure.