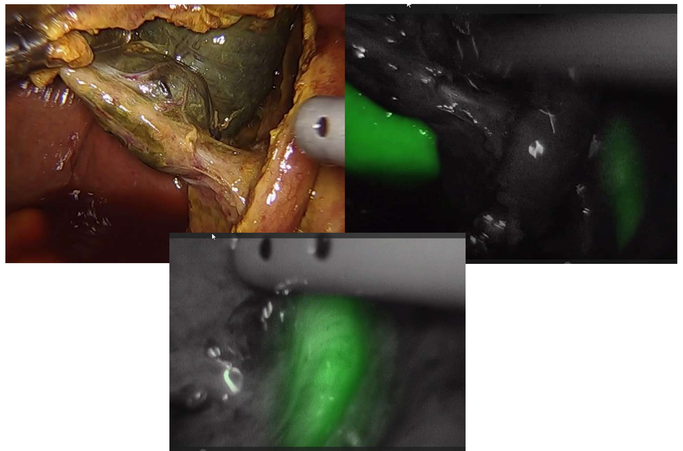
The role of ICG in improving operative safety during emergency laparoscopic cholecystectomy: preliminary results of an observational prospective study.

Antonio Pesce MD PhD FACS; Nicolò Fabbri MD; Carlo V Feo MD FACS; Department of Surgery , AUSL - University of Ferrara

Aim: to evaluate the efficacy of near-infrared fluorescent cholangiography by ICG in real-time visualization of the biliary tree during emergency laparoscopic cholecystectomy and to analyze the clinical outomes.

Primary outcomes:

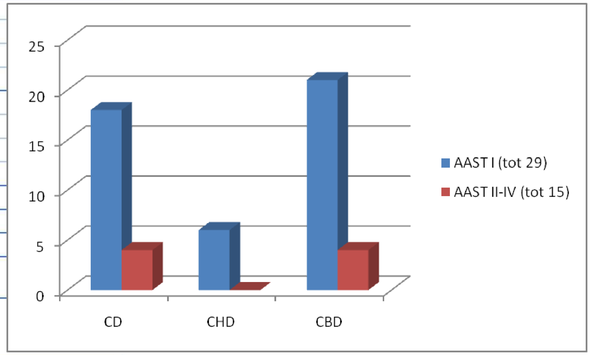
- Visualization of the extra-hepatic biliary tracts in the different degrees of acute cholecystitis according to the AAST classification, by differentiating gangrenous forms (grades II-IV) from non-gangrenous (grade I);
- Total duration of surgery;
- Conversion rate;
- Bail-out procedures;
- Iatrogenic bile duct lesions;

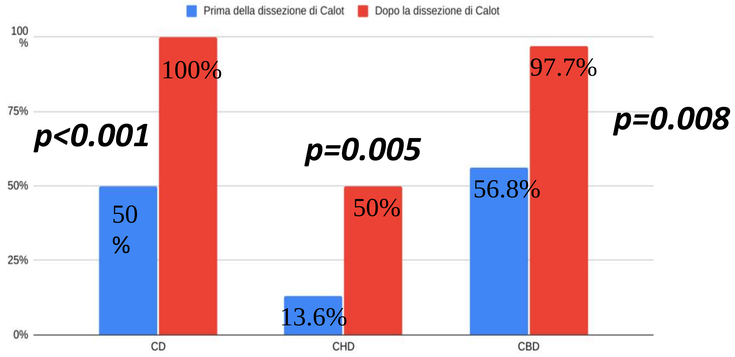


Results

Total number of patients	44
Age	67,2 ±18.6 ys (range 27-93)
Male sex	52.3% (M/F: 23/21)
BMI	26.2 (range 18.4 - 40.1)
-BMI <25	38.6 % (17/44)
-BMI >25	61.4% (27/44)
ASA score	(range I-III)
– I	13.6% (6/44)
– II	43.2% (19/44)
– III	43.2% (19/44)
Previous cholangio-RM	25% (11/44)
Pre-operative ERCP	11.4% (5/44)
Previous acute cholecystitis	45.4% (20/44)
– With associate pancreatitis	20% (4/20)
First surgeon	
-- >50 VLC	59.1% (26/44)
– <50 VLC	40.9% (18/44)

AAST score (range I - IV)	
– **I**	**65.9% (29/44)**
– **II**	**9% (4/44)**
– **III**	**18.2% (8/44)**
– **IV**	**6.8% (3/44)**
Identification of biliary stuctures before Calot's dissection	
CD	50% (22/44)
CHD	13.6% (6/44)
CBD	56.8% (25/44)
Identification of biliary structures after Calot's dissection	
CD	100% (44/44)
CHD	50% (22/44)
CBD	97.7% (43/44)
Conversion rate	0% (0/44)
Intra-operative complications	13.6% (6/44)
Biliary anomalies	13.6% (6/44)
Vascular anomalies	
– Caterpillar hump right hepatic artery	4.4% (1/44)
Bail-out surgery	9.1% (4/44)
- antegrade cholecystectomy	6.8% (3/44)
- subtotal cholecystectomy reconstituting	4.4% (1/44)
Bile duct injuries	9.1% (4/44)
- minor lesions (3 Luschka leaks, 1 cystic duct leak)	100 % (4/4)
- major lesions	0 %
Abdominal drain	54.5% (24/44)
Lenght of surgery	109,8 min (range 35-310 min)





Conclusions: the use of ICG during emergency laparoscopic cholecystectomy for acute cholecystitis may be helpful for the intra-operative visualization of the extrahepatic bile ducts to prevent biliary injuries and it may be used as anadjunct even in emergency setting and difficult cholecystectomies.