



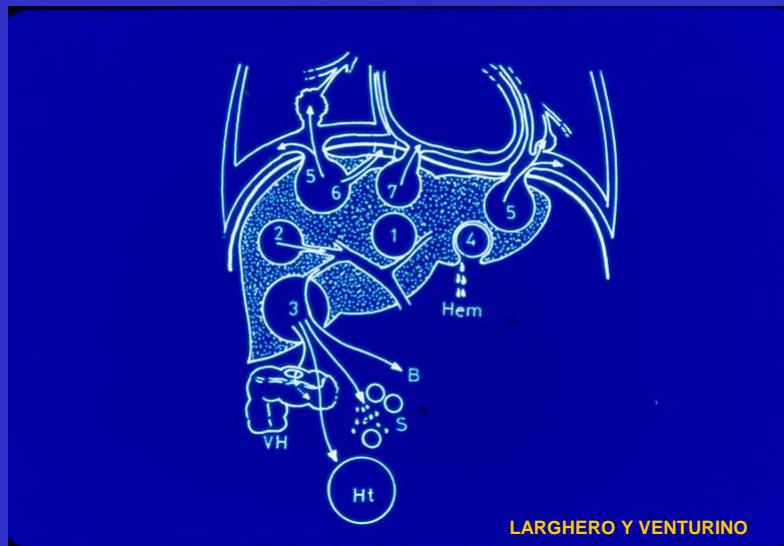
Tratamiento adventicial selectivo y Desconexión Quisto Biliar en Q.H.H.

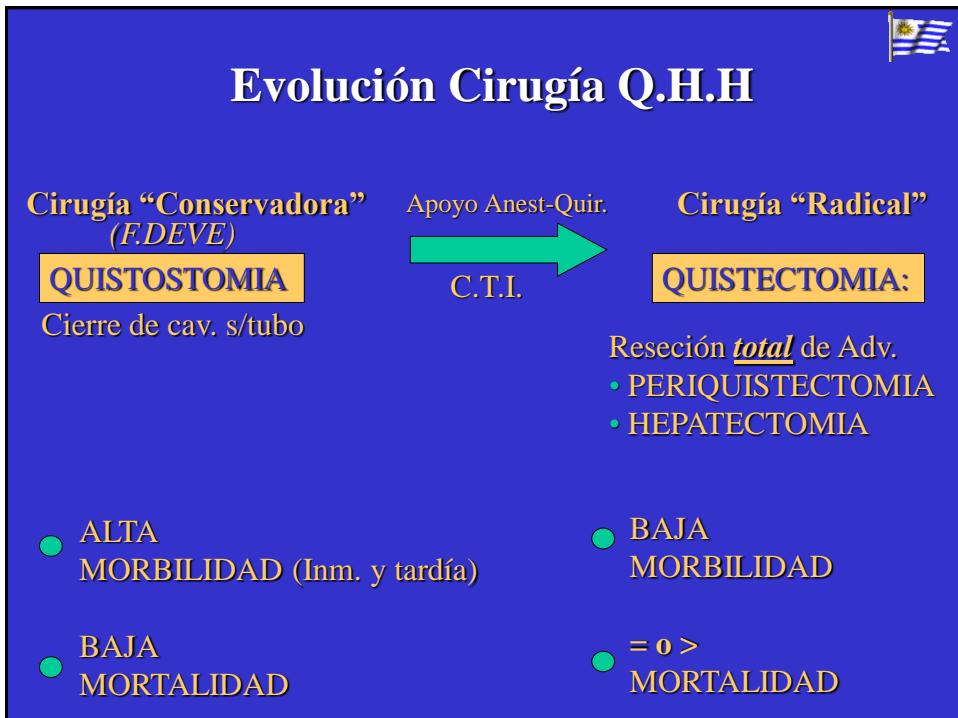
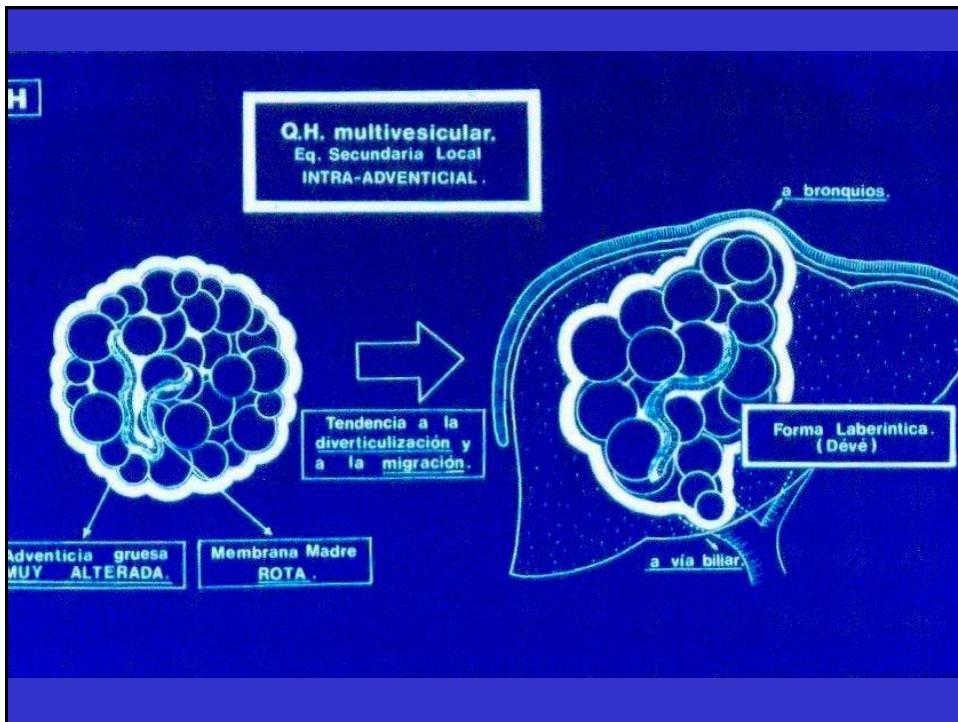
Dr. Echeveste J.; Dr. Correa C.; Dr. Abadie R.; Dr. Ferreira C.

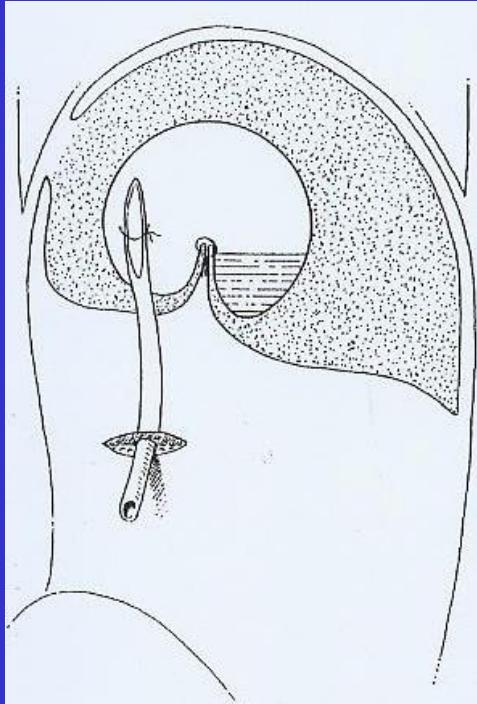
Prof. Dr. Perdomo R. (+)



HIDATIDOSIS HEPATICA COMPLICACIONES



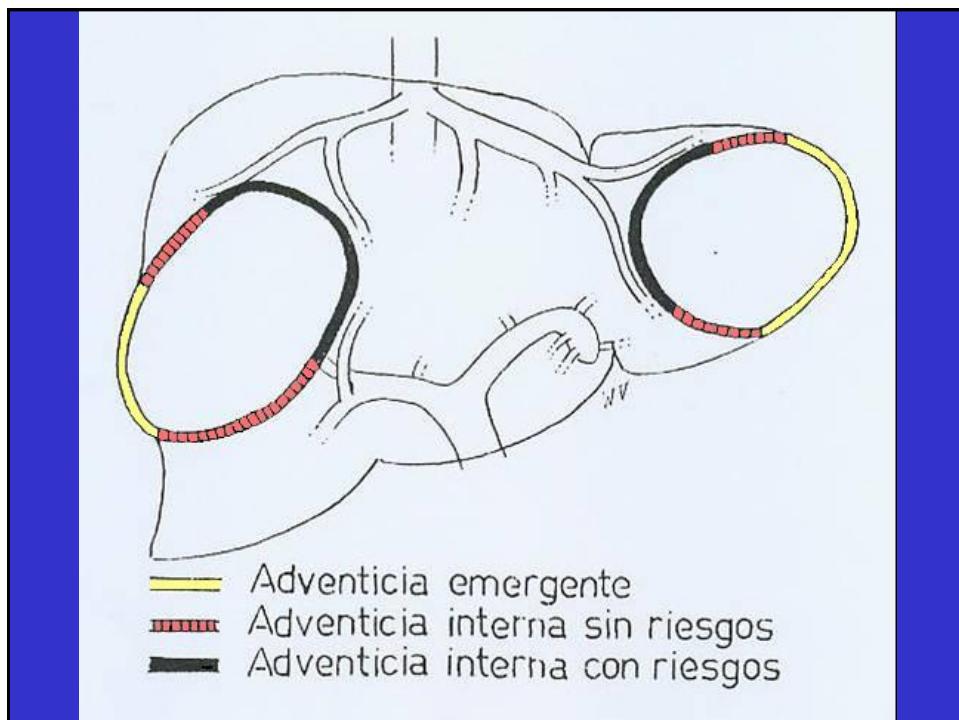
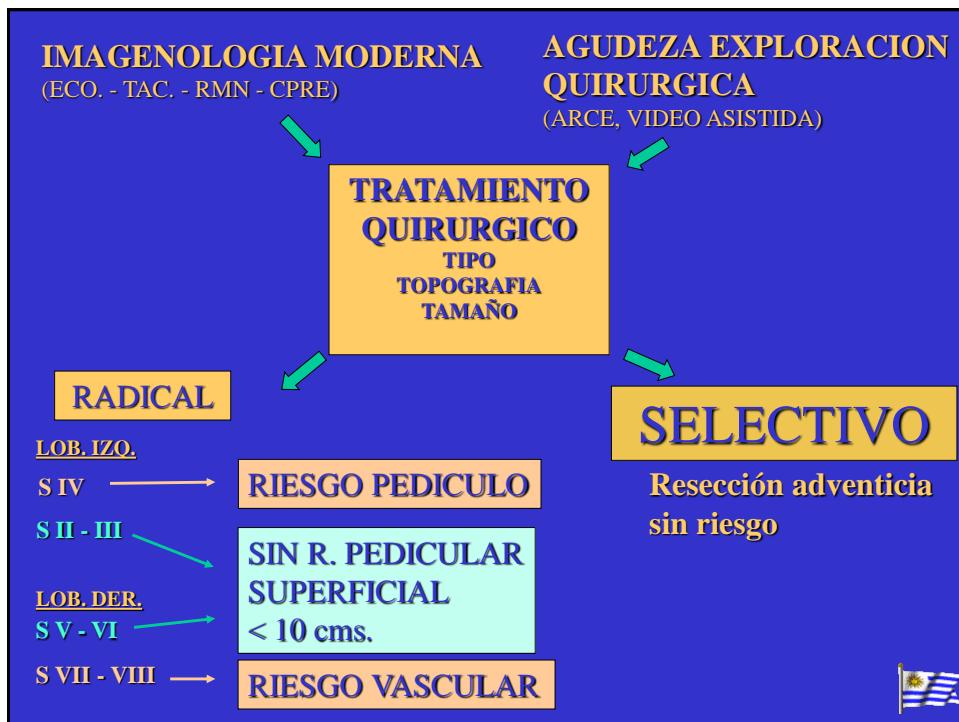


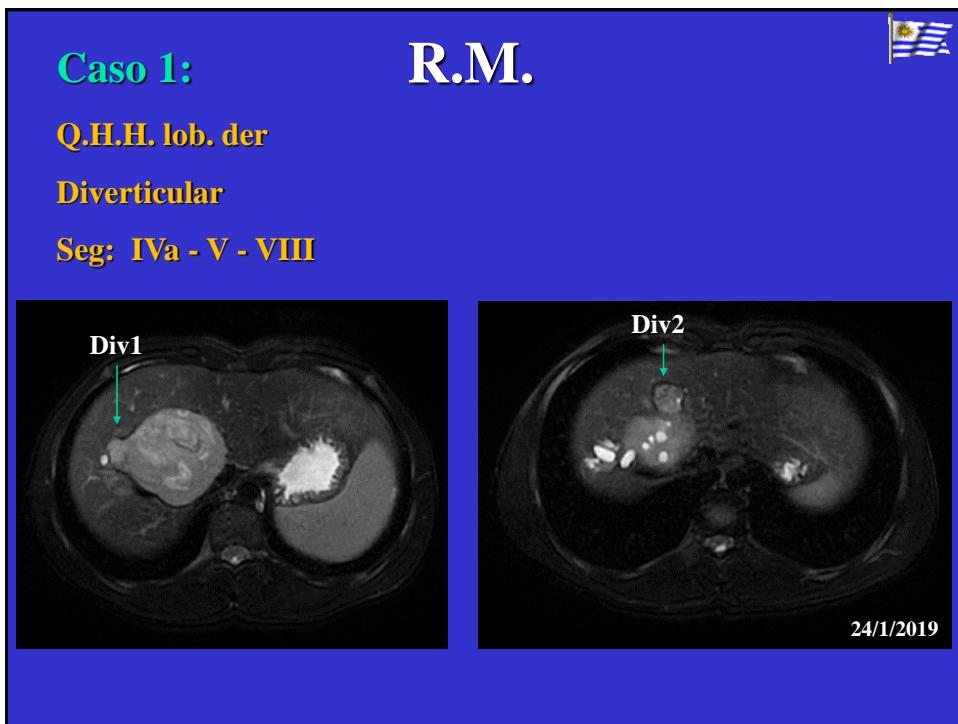
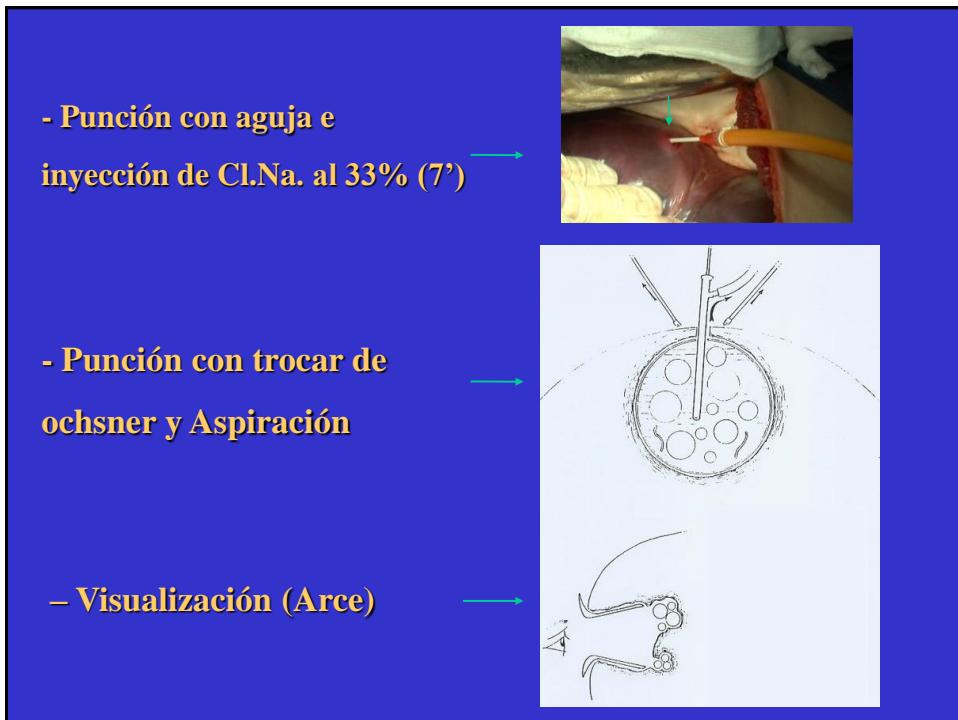


CIRUGIA RADICAL Q.H.H. ESTADISTICA NACIONAL



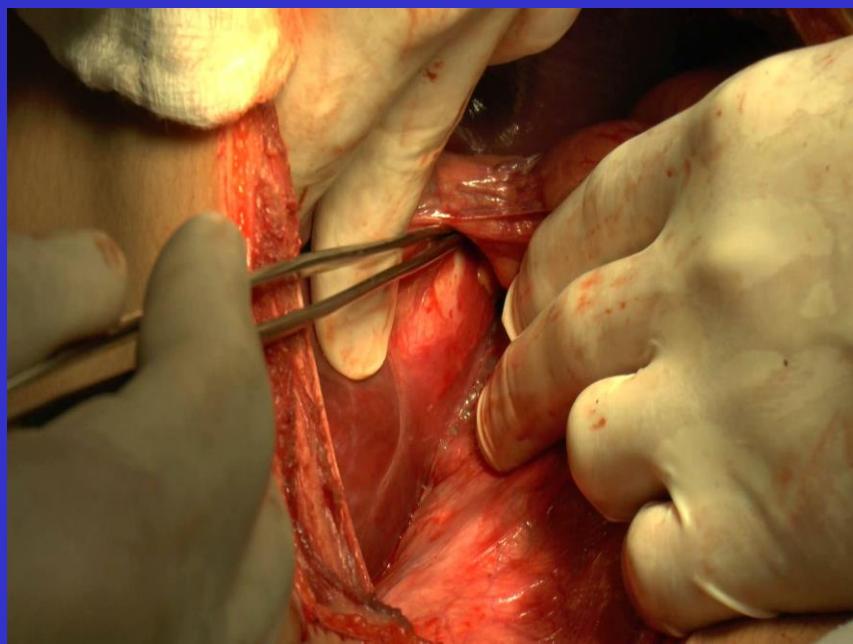
	OPERADOS	MORTALIDAD
• CENDAN	67	4.47 %
• PORRAS	19	0
• TORTEROLO (87)	37	0
• B. DELGADO (91)	39	5.1 %
• PROMEDIO	162	2.39 %
• TORTEROLO (94)	121	2.4 % NO DIRECTAMENTE ATTRIBUIBLE A PROCEDIMIENTO







R.M. (dinámica) divertículos





RM Coronal (30 días post cirugía)



D. Q. B.

**Procedimiento de Elección
en Quistes Hidáticos Hepáticos
“Comunicados” con el Tracto Biliar:**

- **Fisurado**
- **Abierto y evacuado**

ABERTURA QUISTICA EN CONDUCTOS BILIARES PRINCIPALES



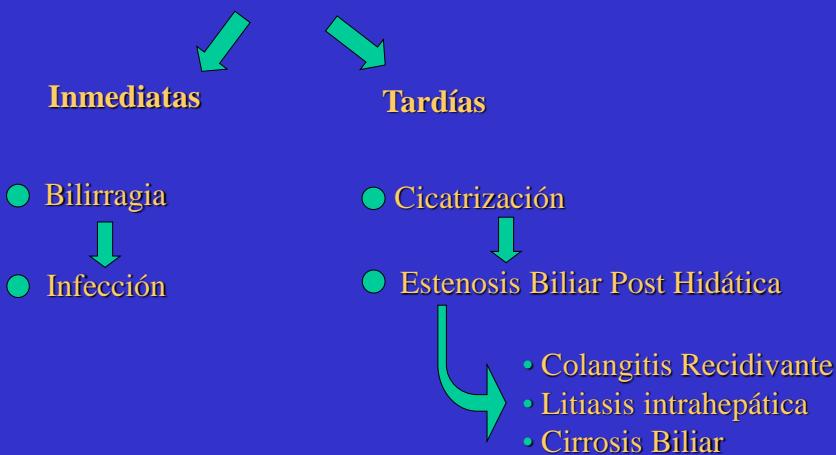
- Equivale a herida V.B.P.

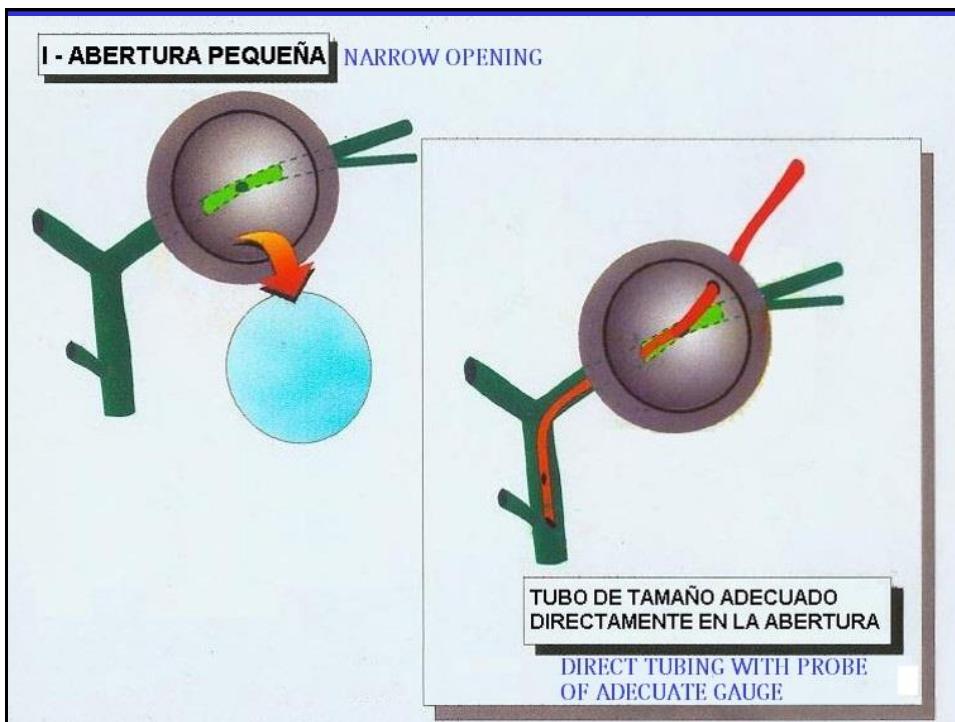
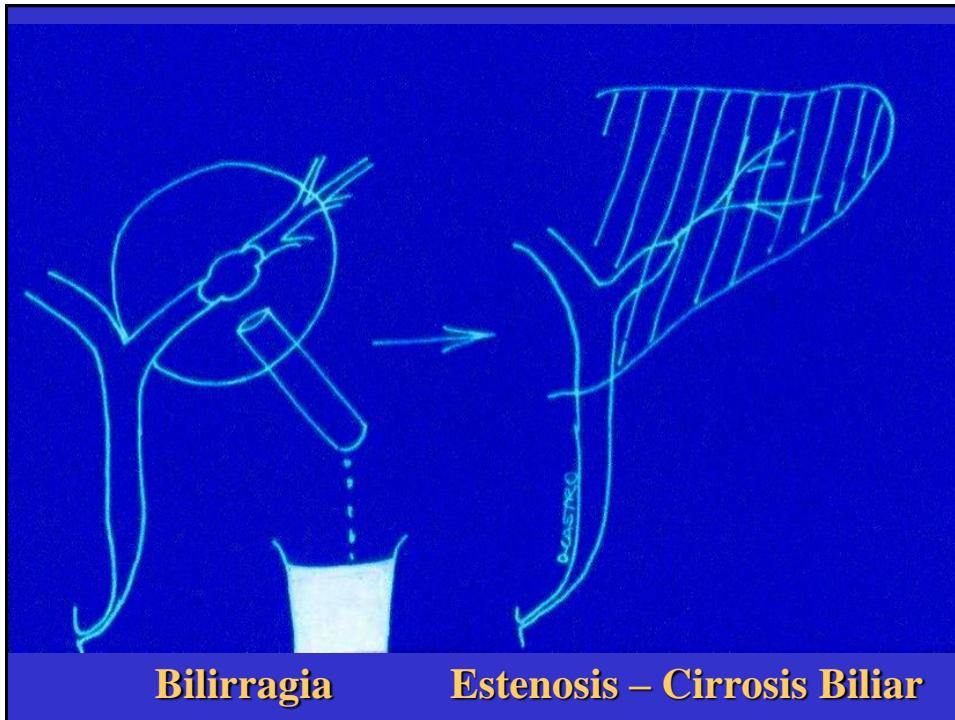
- *Abertura*
 - Pequeña
 - Amplia

ABERTURA QUÍSTICA NO TRATADA

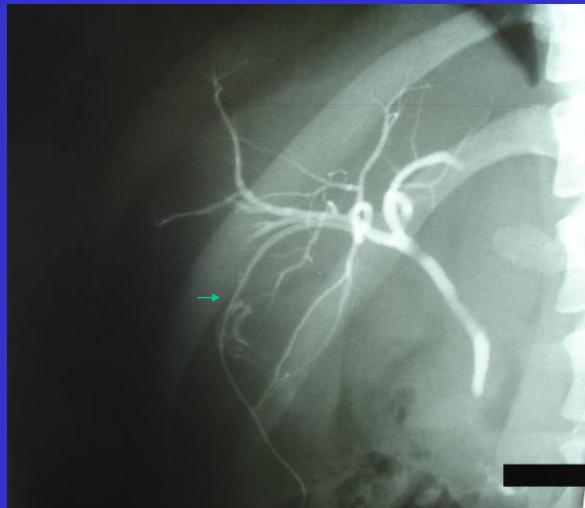


CONSECUENCIAS





Caso 2: Abertura Pequeña



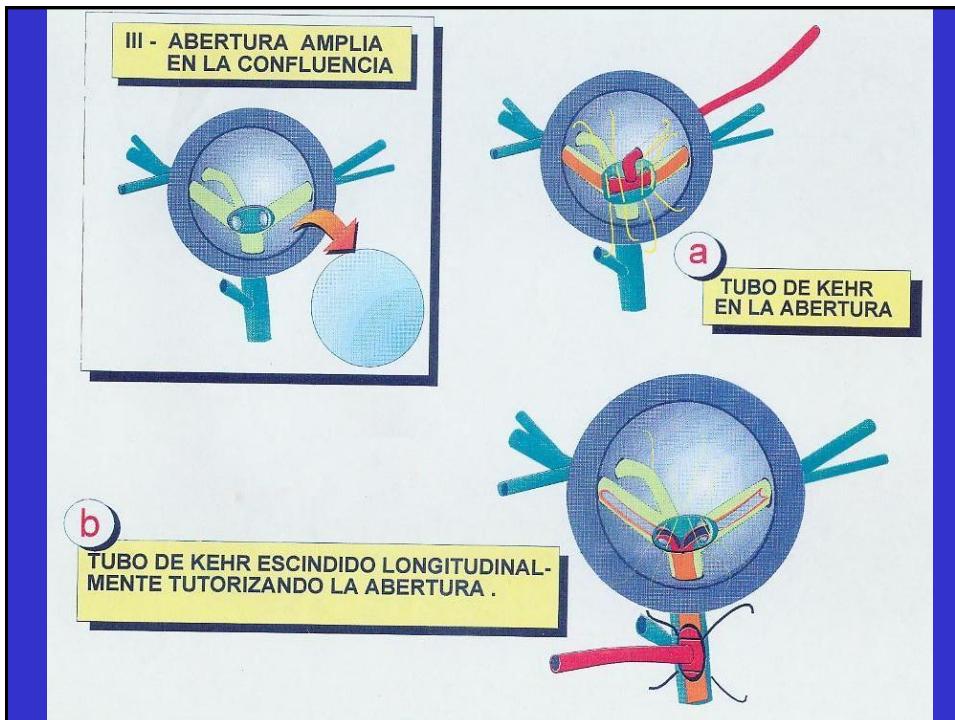
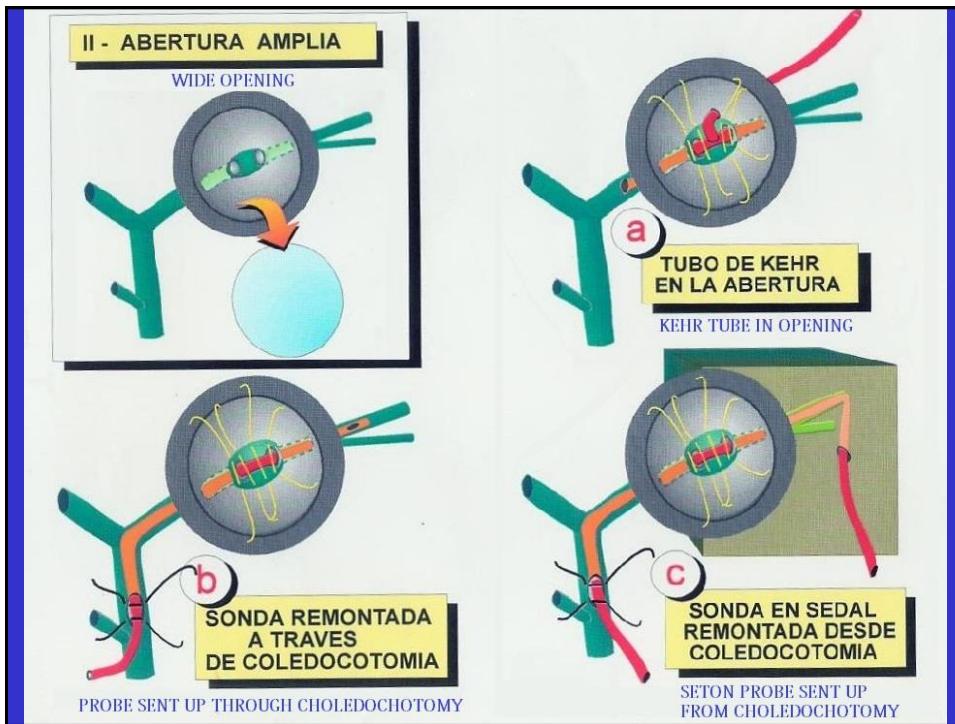
- J.F. 41 a.
- Q.H. lob. der.
- Vía Biliar fina.
- Próx. a Confluencia
- D.Q.B. perfecta: sin fuga de Contraste

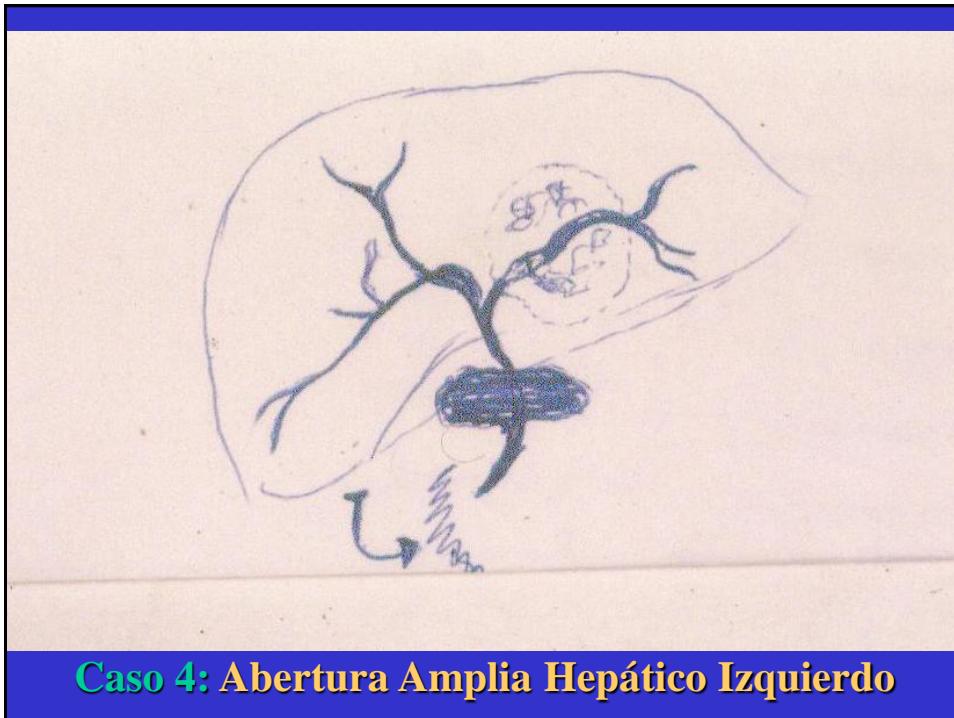
Caso 3: D.Q.B. abertura pequeña



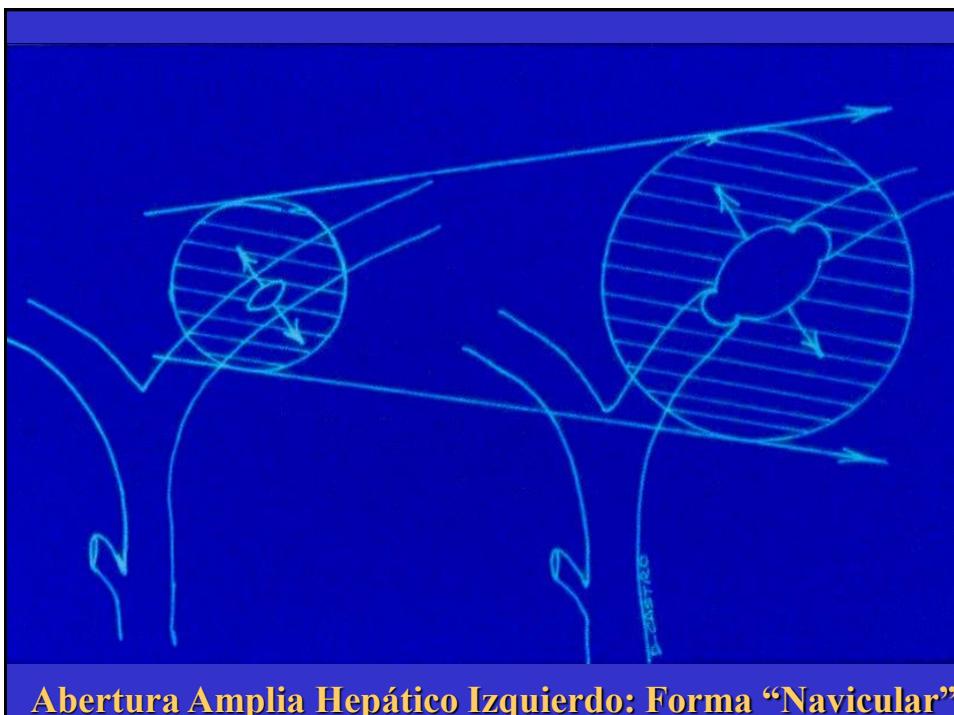
- Signo de la “Canasta” (“Basket”)



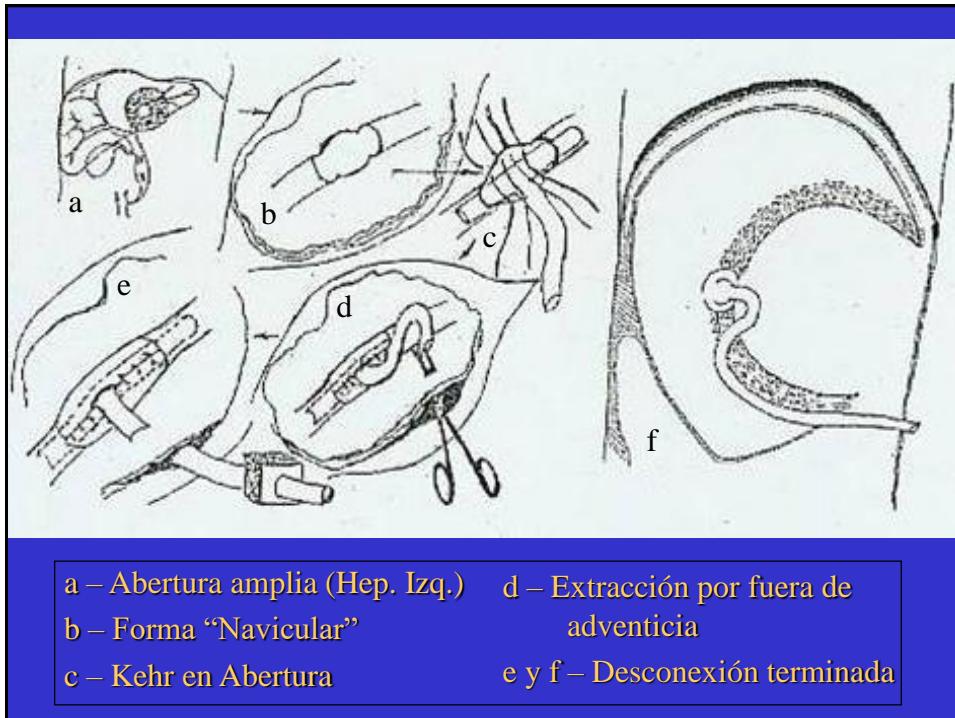




Caso 4: Abertura Amplia Hepático Izquierdo



Abertura Amplia Hepático Izquierdo: Forma “Navicular”

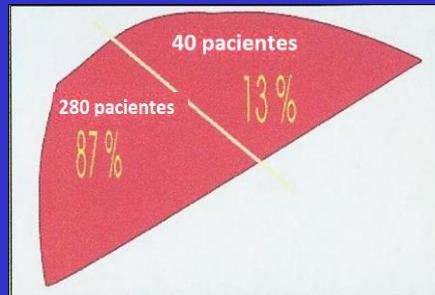


Casuística D.Q.B.



320 pacientes

- Edad Prom. 45 años
- 298 adultos (93%)
- 22 niños (7%)
- Sexo:
 - 192 M (60%)
 - 128 F (40%)



Resultados:

- Mort. : 1 (T.E.P.) 0,3%
- Reop. : 13 4 %
 - 4 "Bilioma cavidad"
 - 3 Peritonitis Biliar
 - 6 Abcesos Subfrénicos

Prom. Est.: 8 Días

CONCLUSIONES

En los Q.H.H. el tratamiento selectivo de resección adventicial es satisfactorio si:

- Se esteriliza y aspira adecuada de la cavidad
- Se explora minuciosamente la misma y sus recesos
- Se reseca la adventicia sin riesgo
- Se efectúa D.Q.B. en los comunicados con Vía Biliar
- Se deja cavidad abierta y drenada (ideal: epiploplastia)
- Se practica antibioticoterapia asociada

En esta etapa poco
podemos hacer por la



Hidatidosis

Catheterization and MoCaT techniques: What is new?

Dr. Okan Akhan
Prof. of Radiology
Hacettepe University
School of Medicine
Ankara/TURKEY



Outline

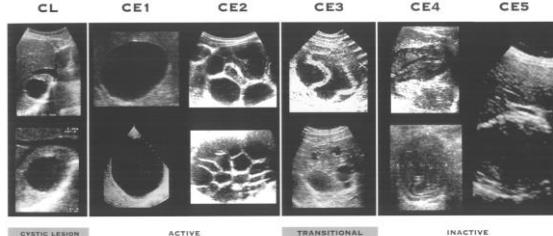
- Catheterization technique
 - Technique
 - Indications
 - results
- MoCaT
 - Technique
 - indications
 - results

Management options for Liver CE



ANNEX 1

WHO-IWGE CLASSIFICATION OF ULTRASOUND IMAGES OF CYSTIC ECHINOCOCCOSIS CYSTS



PAIR

23

WHO/CDS/CSR/APH/2001-6

Percutaneous treatment

Techniques

- PAIR
- Standard Catheterization technique
 - With Hypertonic saline and/or alcohol
- Modified Catheterization techniques
 - MoCaT

Preparation before procedure

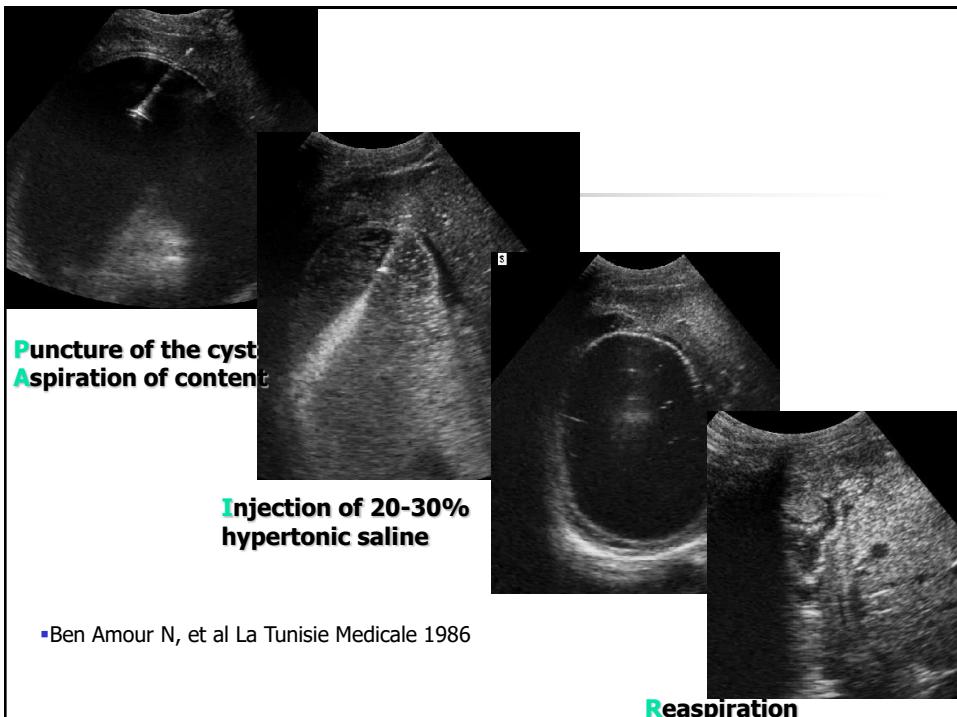
- Before the procedure
 - US, MRI/CT or chest x-ray
 - CBC, PT, PTT, INR
 - fasting overnight
 - iv sedation
 - monitoring closely for possible risk of anaphylaxis
 - by anaesthesiology team

Procedure

- Performed under
 - US
 - US + fluoroscopy guidance

1.Technique/PAIR

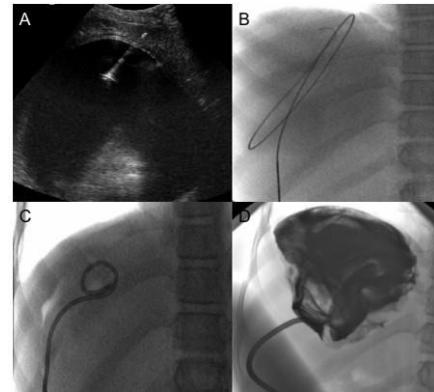
- Puncture of the cyst
 - Aspiration of the cyst contents
 - Injection of hypertonic saline
 - Reaspiration
-
- Ben Amour N, et al La Tunisie Medicale 1986



■ Ben Amour N, et al La Tunisie Medicale 1986

2. Technique/ Catheterization tech. w hypertonic saline / ethanol

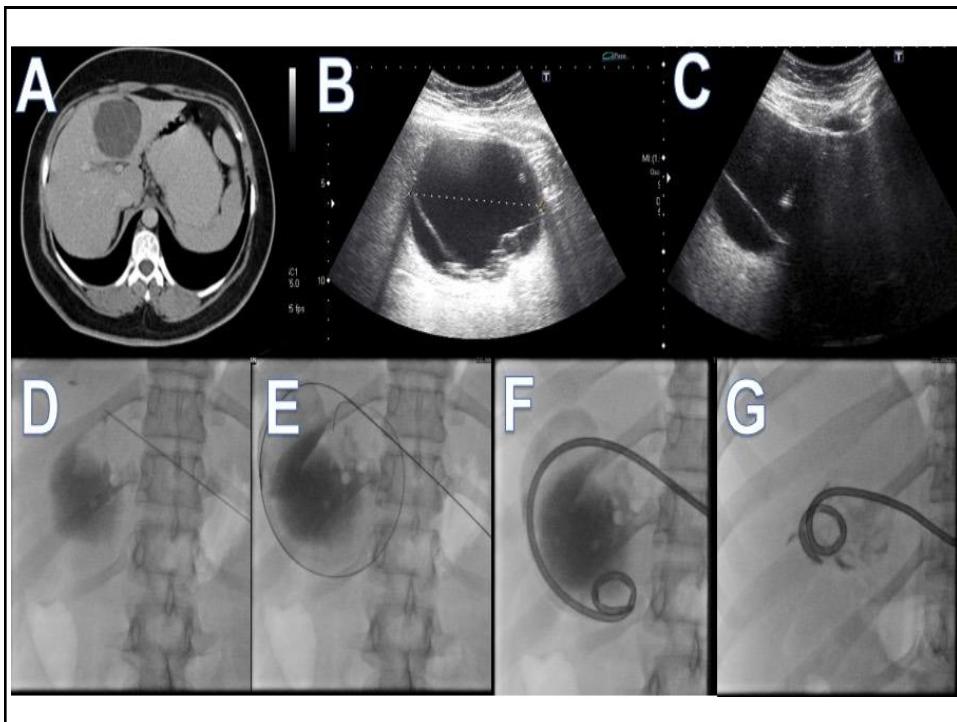
- after PAI steps a catheter (6-10 Fr) is placed
- irrigation of the cavity by hypertonic saline
- fixing the catheter
 - left for gravity drainage for 24 hrs
- Akhan O, et al. Invest Radiol 1993; 28:121-127
- Akhan O, et al Radiology 1996; 198:259-264



2. Technique/ Catheterization tech. w hypertonic saline / ethanol

- if 24 hrs drainage is less than 10 cc
 - a cystogram is obtained
- if there is no communication with biliary tree
 - 95 % ethanol (25 - 35 % of estimated volume) is administered (5-10 min) to sclerose the cyst wall
- catheter withdrawn
- Akhan O, et al. Invest Radiol 1993; 28:121-127
- Akhan O, et al Radiology 1996; 198:259-264





2. Technique/ Catheterization tech. w hypertonic saline / ethanol

- If there is a cysto-biliary fistula, the catheter is kept in place until the bile drainage is ceased
- Later, the next steps are employed

Akhan O, et al. Invest Radiol 1993; 28:121-127
 Akhan O, et al Radiology 1996; 198:259-264

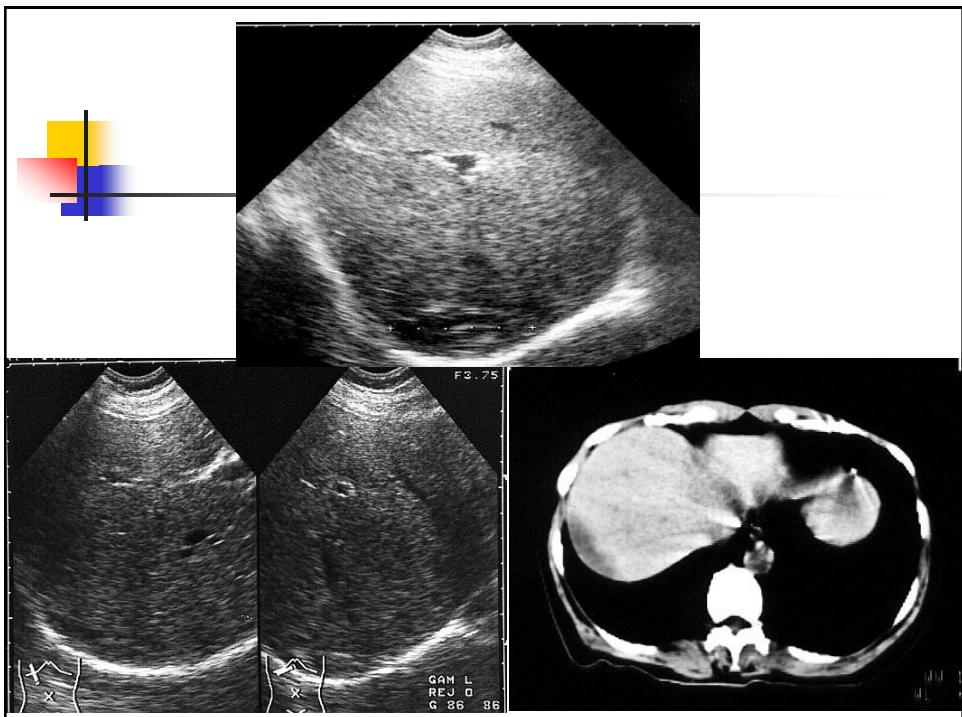
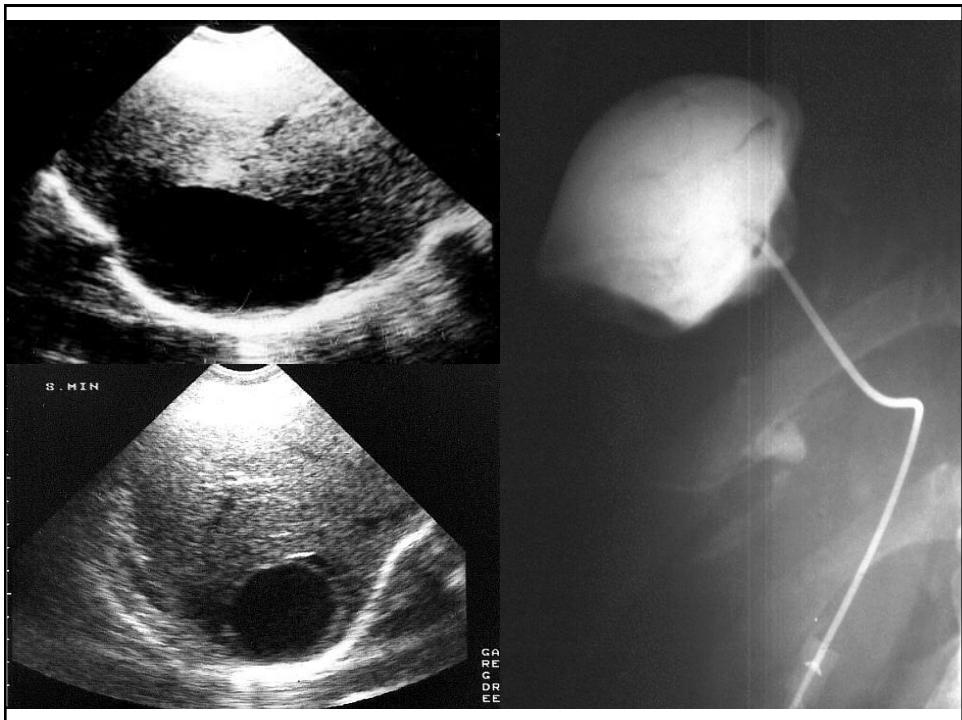


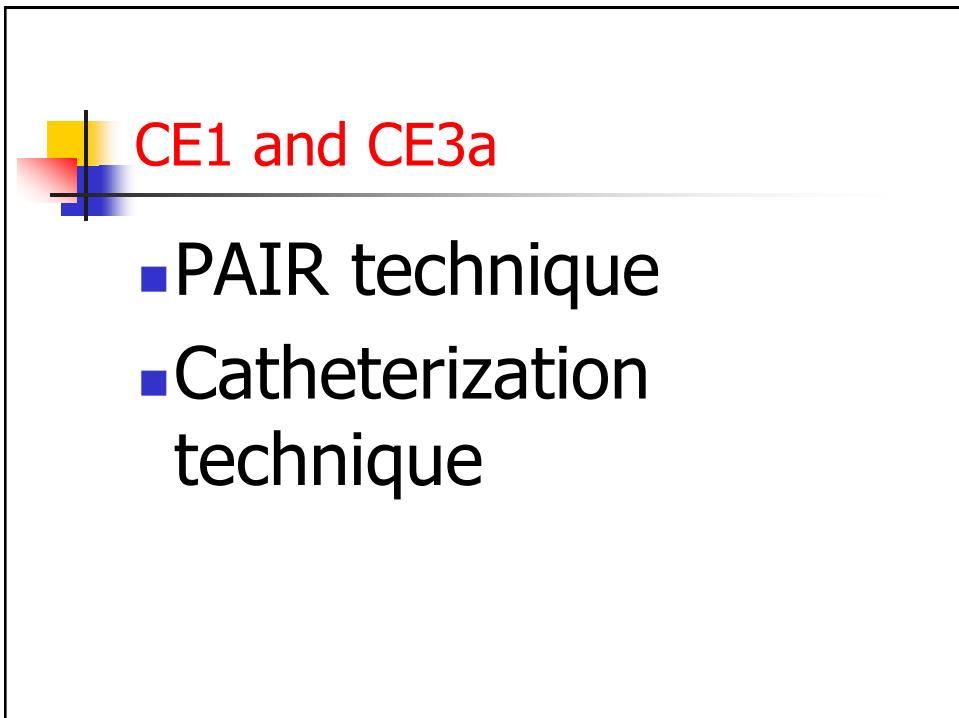
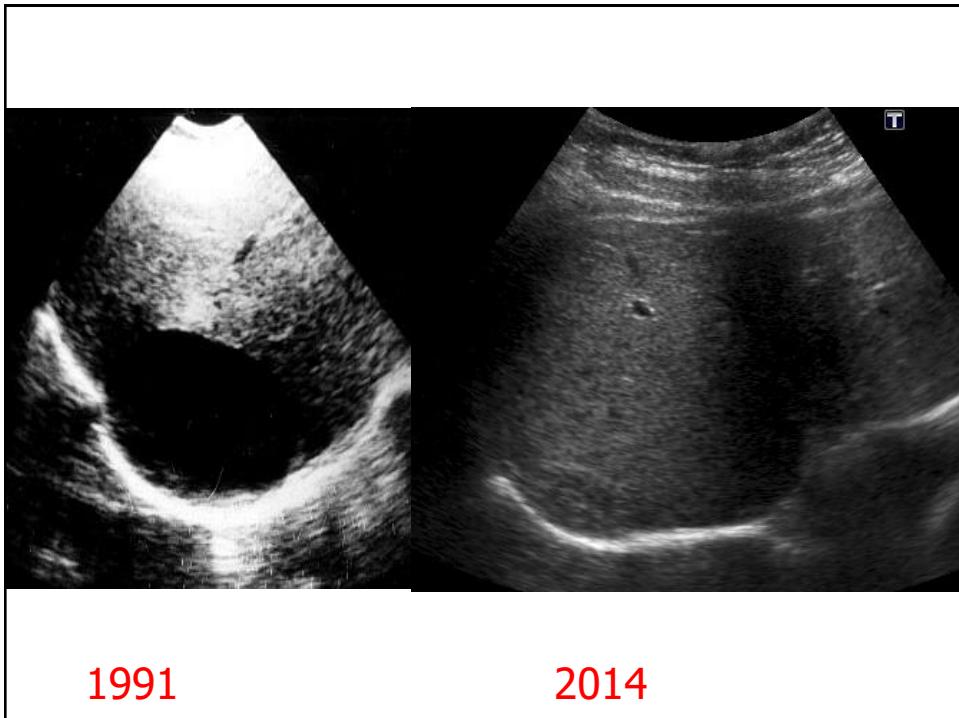
2. Technique/ Catheterization tech. w hypertonic saline / ethanol

- If biliary fistula does not heal with catheter drainage
 - **ERCP with papillotomy is considered for effective bile drainage**
 - **Papillotomy with**
 - Naso-biliary drainage
 - Stent
- Later, the next steps are employed

Akhan O, et al. Invest Radiol 1993; 28:121-127
 Akhan O, et al Radiology 1996; 198:259-264



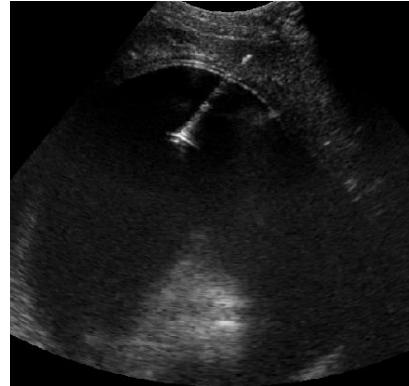




CE 1-3A / Type I-II

PAIR OR Catheterization

- Which one is chosen in which conditions?



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Asian Pacific Journal of Tropical Medicine (2014)212–215



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Hepatic cystic echinococcosis: Percutaneous treatment as an outpatient procedure

Mert Köroğlu^{1,*}, Bekir Erol¹, Cemil Gürses¹, Barış Türkbeş², Cem Yunus Baş¹, Ahmet Şükrü Alparslan¹, Banu Kale Köroğlu³, İclal Erdem Toslak¹, Bülent Çekiç¹, Okan Akhan²

¹Clinic of Radiology, Antalya Education and Research Hospital, Antalya, Turkey²Hacettepe University Faculty of Medicine, Department of Radiology, Ankara, Turkey³Süleyman Demirel University Faculty of Medicine, Department of Internal Medicine, Isparta, Turkey

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Percutaneous treatment

ABSTRACT

Objective: To demonstrate utility and safety of the puncture aspiration injection and respiration (PAIR) technique for outpatients. **Methods:** Percutaneous treatment with US guidance was applied to 33 patients for 44 cysts. Patients treated with the PAIR technique, were outpatients. PAIR and catheterization technique were evaluated for efficacy and safety of procedure and complication rates. **Results:** Thirty-five of 44 cysts were treated with the PAIR and 9 of 44 were treated with the catheterization technique. The success rate of the cysts Gharbi type 1 (CE1) and type 2 (CE2a) treated with the PAIR technique was 100%. In the follow up of 9 cysts treated with the catheterization technique, 2 of them (22%) developed cyst infection and 1 (11%) developed a biliary fistula. **Conclusions:** The PAIR technique was found to be an effective and safe approach in order to treat Gharbi type 1 and type 2 cysts percutaneously for outpatients. It has a very low complication rate in comparison with the catheterization technique. So every effort should be made to finish the treatment with PAIR technique.

Köroğlu M. et al. APJTP 2014

- PAIR

- To be effective and safe for Gharbi 1-2
 - On the outpatient basis
- Associated with very low complication rate
 - in comparison with the Catheterization technique

Akhan O. et all 2019

PAIR vs. Cath Tech. for CE1-3a

- 38 pts with 53 liver CE randomized
 - PAIR 21 pts w 34 CE
 - Catheterization 17 pts w 19 CE
- Follow-up

	PAIR	Cath.
Follow-up	59	38

Changing technique from PAIR to Catheterization

- The rate of changing technique from PAIR to Catheterization was 8.1%
 - In 2 patients with 3 cysts
 - Communication with biliary tree
 - Needle obstruction due to membranes
 - which hampered further aspiration
 - Akhan O. et al. CVIR 2019 (under review)

Results

	PAIR	Catheterization	P value
abscess	1 cyst (4.76%)	5 cysts (29.41%)	
CBF	0	4 cysts (23.52%)	
Recurrence	0	1 cyst (5.88%)	
Total %	4.76%	58.81%	P=0.037
Minor Complications	12 (57%)	10 (55%)	P =0.917

Akhan O. et al. CVIR 2019 (under review)

Results for giant CE1-3a

Catheterization	<10 cm	>10 cm
Abscess and/or CBF	1 cyst out of 12 (8.33%)	5 out 7 (71.42%).

PAIR or Catheterization

- PAIR is recommended as a first technique for CE1 and 3a whenever possible
- There are two reasons for moving from PAIR to «Standard Catheterization Technique»
 - If a cysto-biliary communication (CBC) occurs
 - any technical problem develops during the PAIR procedure such as
 - Insufficient aspiration of cystic content by a needle
 - Insufficient exchange of ethanol



In 1990'

- We used to recommend for CE1-3a
 - PAIR technique
 - when the diameter is less than 6 cm
 - means less than 100cc in volume
 - Catheterization technique
 - when the diameter is larger than 6 cm
 - means more than 100 cc in volume



PAIR

- has become the first technique for
 - CE1
 - CE3a
 - Giant one is also included

WHO	Gharbi
CE 2	Type III
CE 3b	Type III

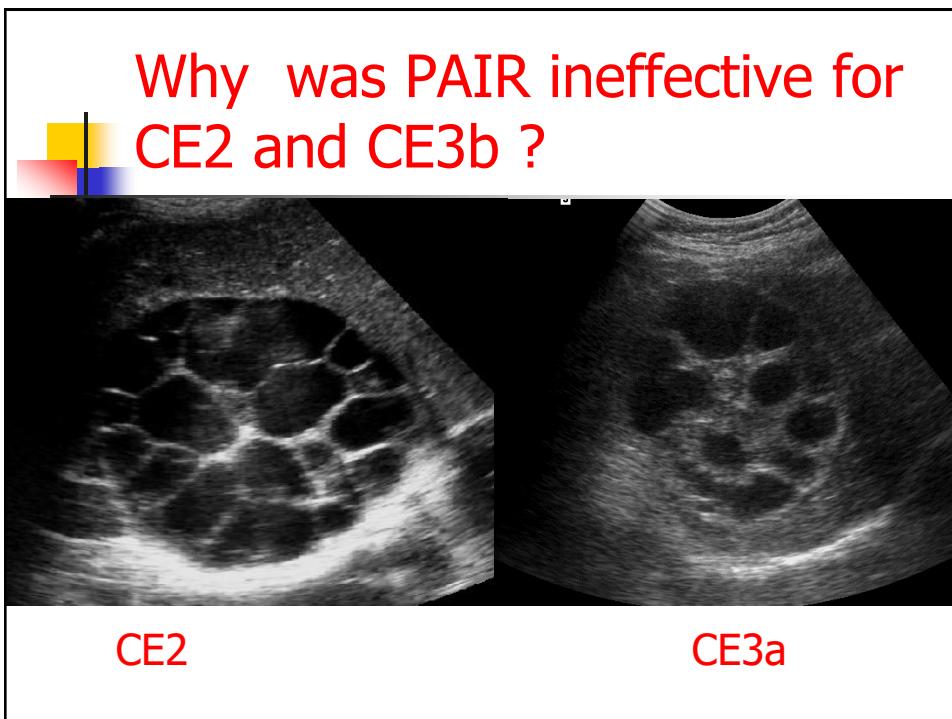
ANNEX 1

WHO-IWGE CLASSIFICATION OF ULTRASOUND IMAGES OF CYSTIC ECHINOCOCCOSIS CYSTS

CL CE1 CE2 CE3 CE4 CE5

CYSTIC LESION ACTIVE TRANSITIONAL INACTIVE

PAIR 23 WHO/CDS/CSR/APH/2001.6



Treatment results with PAIR for CE2 and 3b

- The recurrence rate of 61.5% with the PAIR
 - Kabaalioglu A. Et al Eur J Radiol. 2006
- 58 multivesicular cysts (CE2 or CE3b) in 30 pts
 - underwent (D-PAIR)
 - Local recurrences
 - 14 patients out of 19
 - Recurrence rate was calculated
 - for cysts with 32.2% and for patients with 46.6% in this study.
- Giorgio A. Et al. J Ultrasound Med. 2001



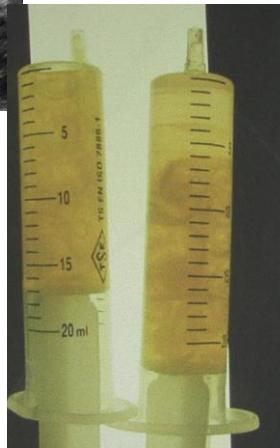
Modified Catheterization Techniques

- Saremi F. et al AJR 1992-1995
- Haddad et al CVIR 2000
- Schipper et al. Gut 2002
 - the percutaneous evacuation (**PEVAC**) gained popularity
 - With this method, all solid cyst components are evacuated using a thick suction catheter
 - there was a high frequency of cysto-biliary fistulas with this method.
 - Schipper HG, Laméris JS et al. Gut 2002
 - Haddad MC, et al. CVIR 2000

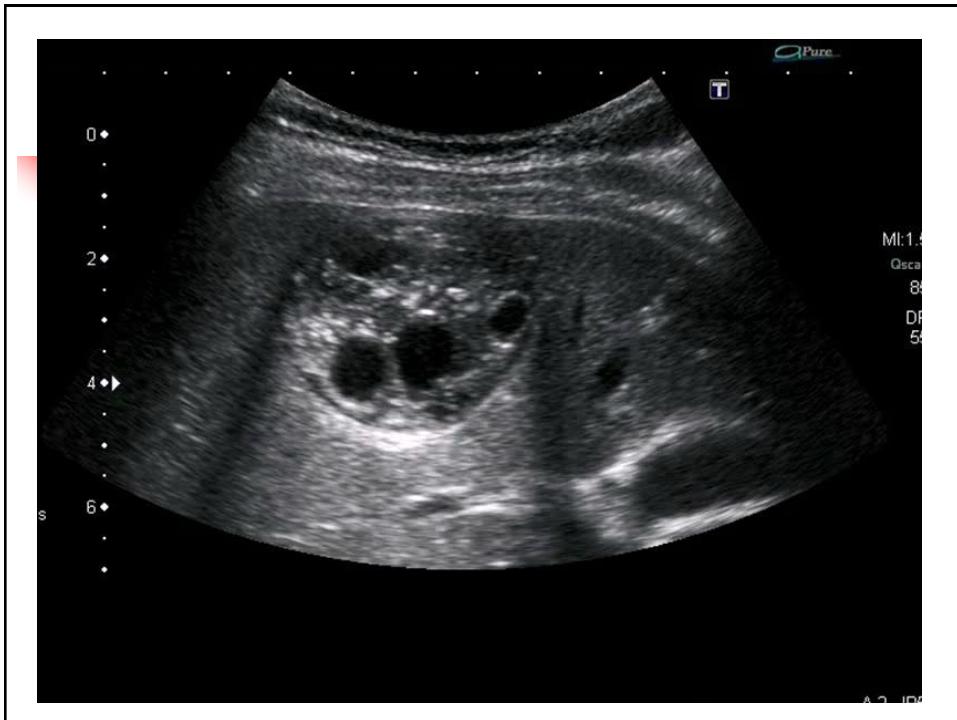
3. Technique/ (MoCaT) Modified Catheterization Techniques

- after first puncture
 - a 14F catheter is placed
- Main goal: evacuation of the cavity content with
 - **Effective and aggressive irrigation with isotonic saline**
- fixing the catheter for gravity drainage
- catheter withdrawn after the complete evacuation

- Schipper HG, et al. Gut 2002
- Akhan O, et al Cardiovasc Intervent Radiol 2007
- Akhan O. at al AJR 2017



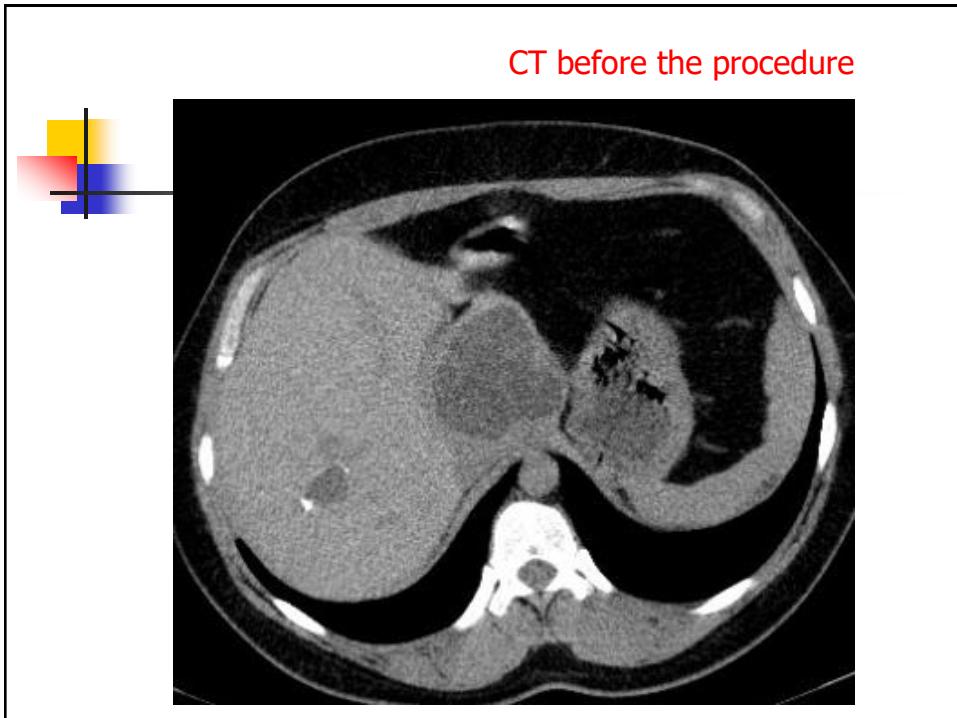
Evacuation of cyst content D



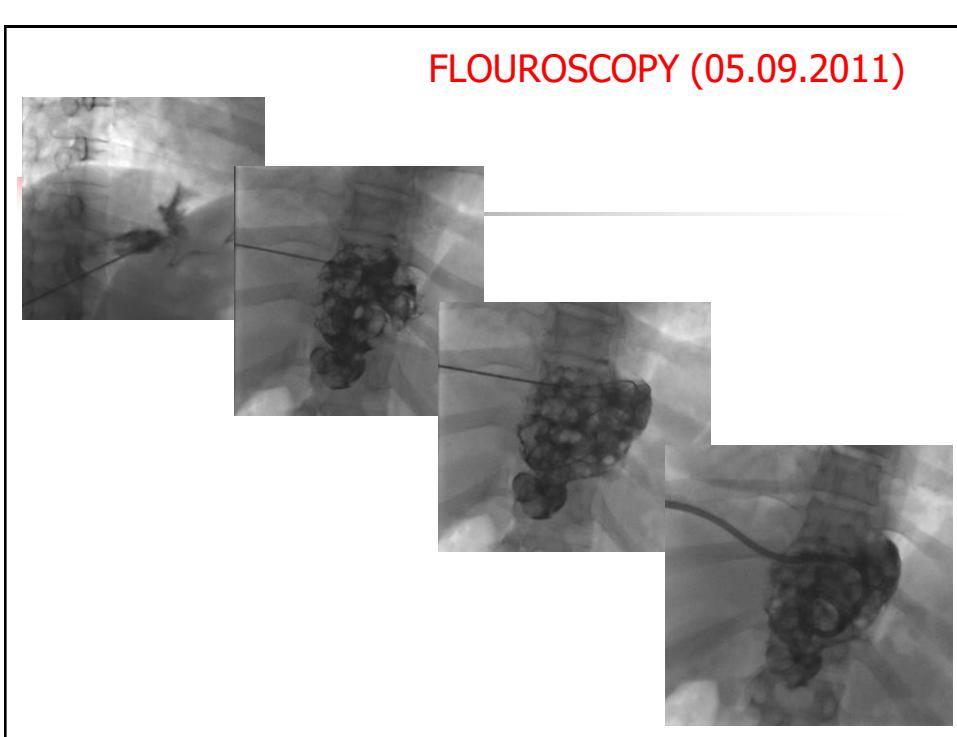
 Case-1

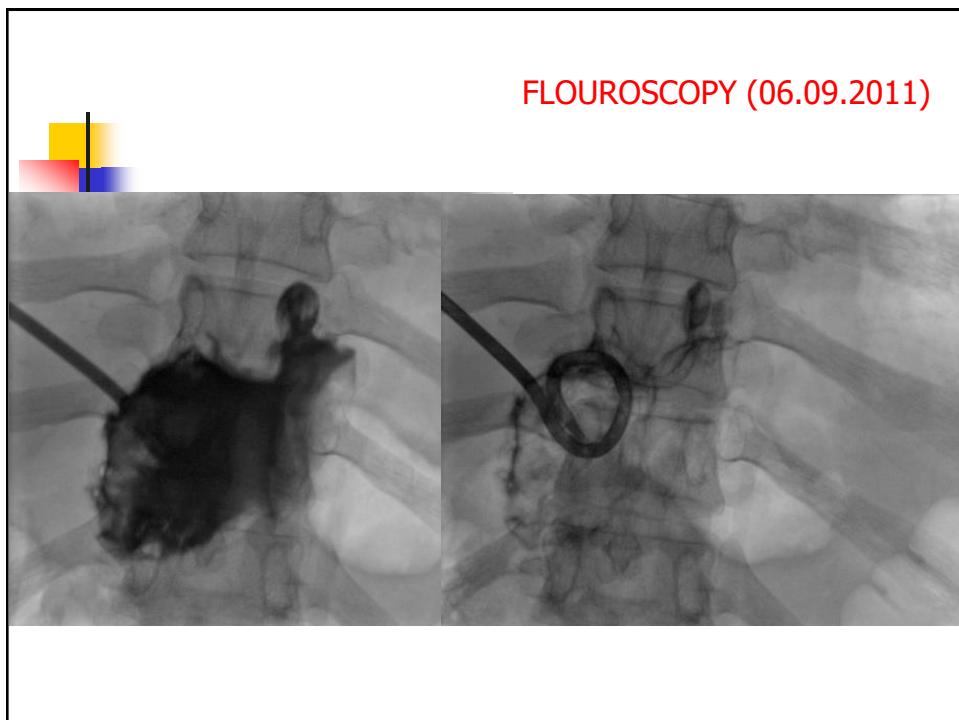
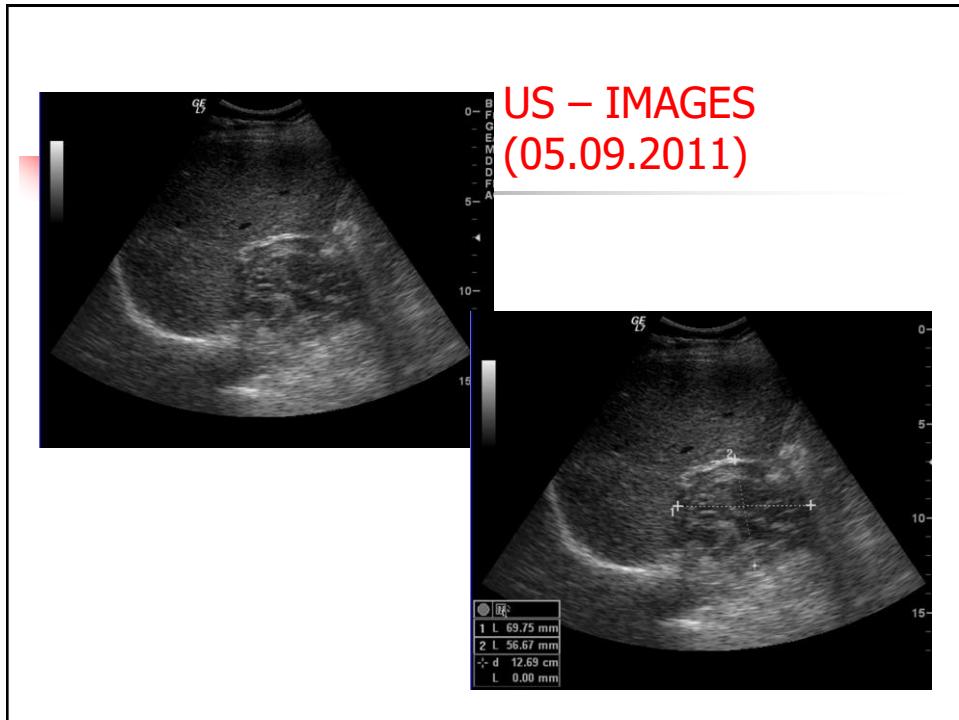
- 37 y-old female
 - CE 3b
 - Segment 1
 - Treated by MoCaT

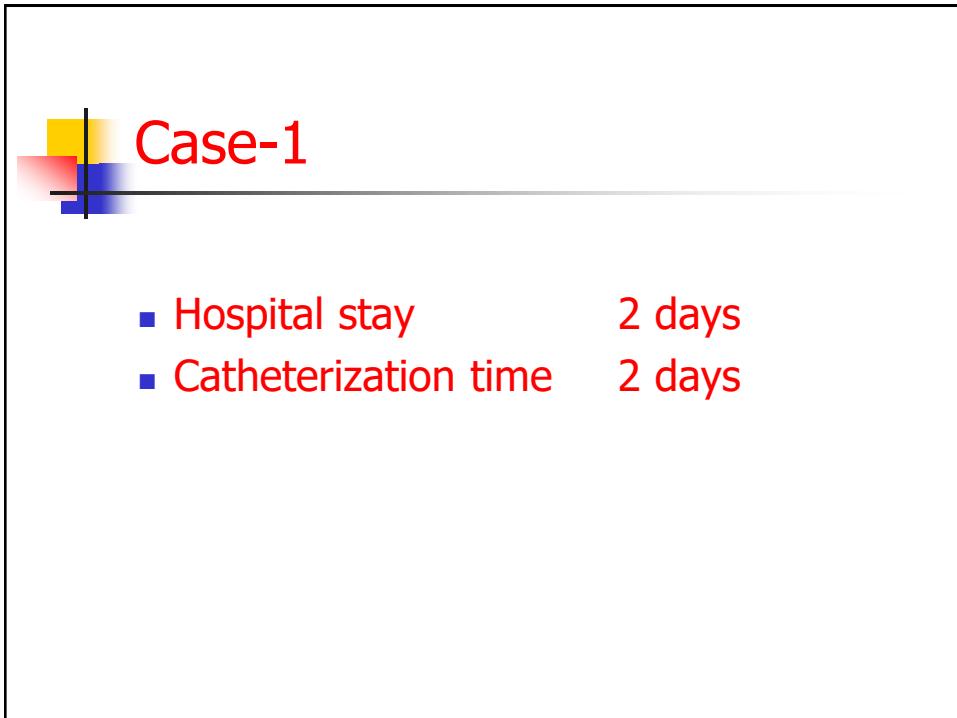
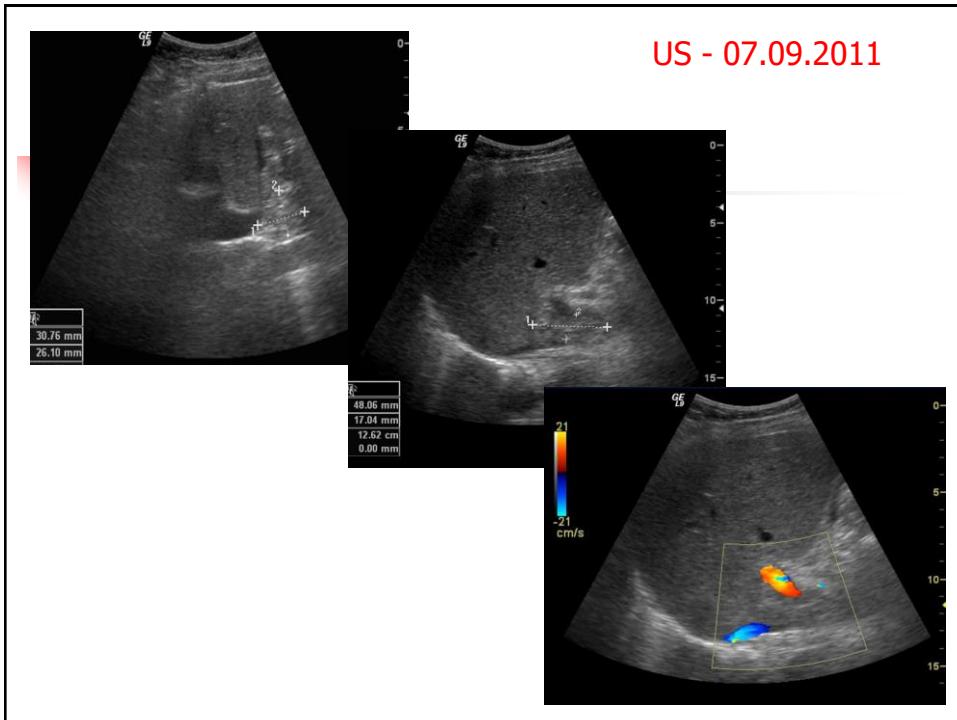
CT before the procedure



FLOUROSCOPY (05.09.2011)



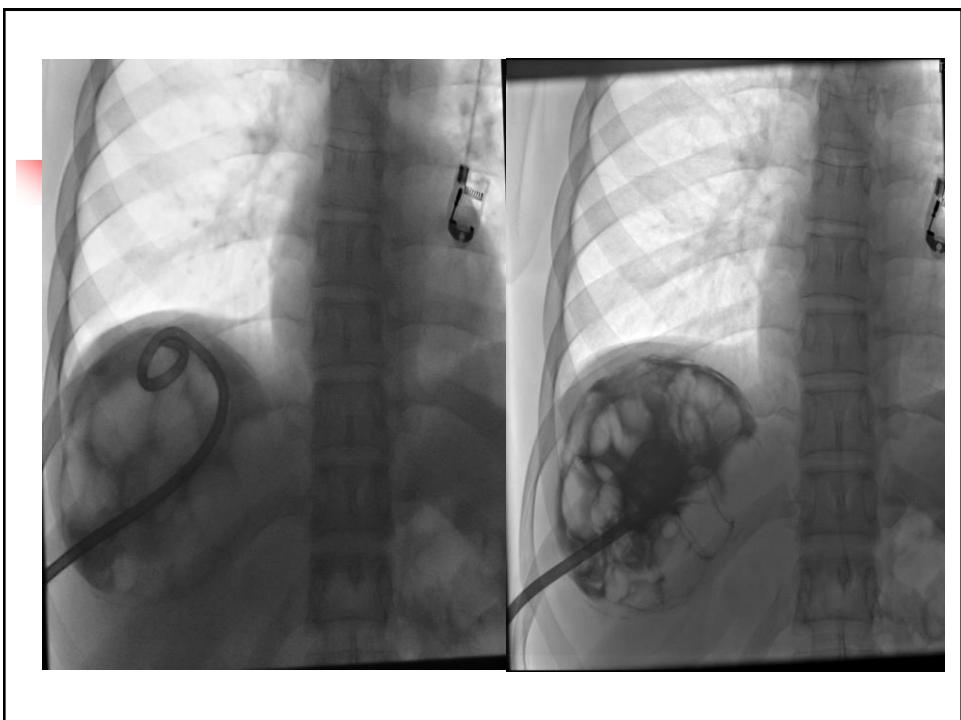
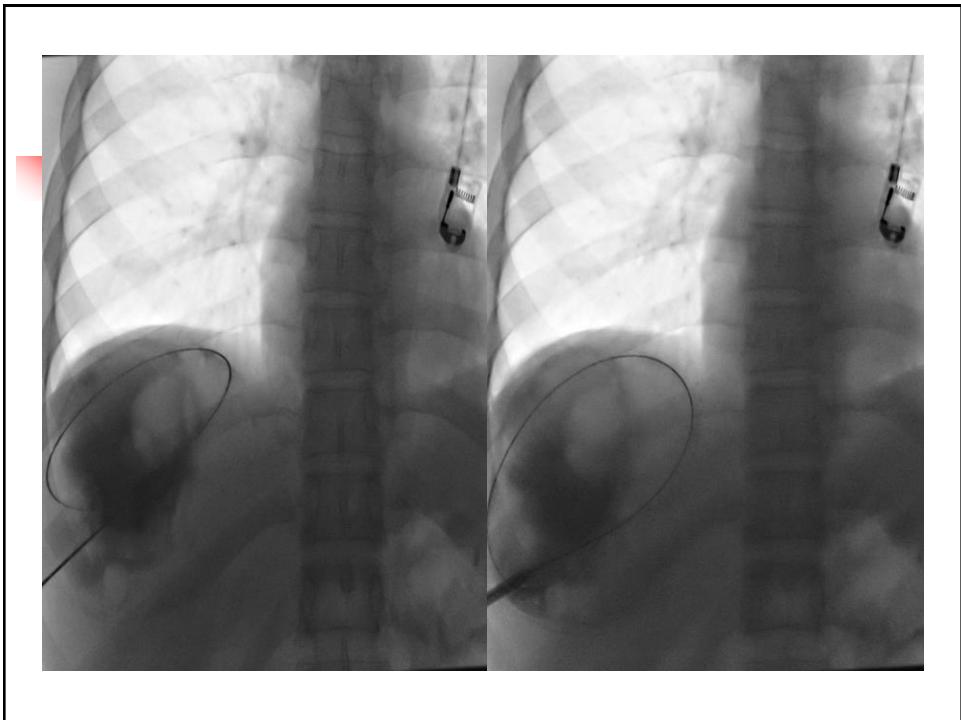


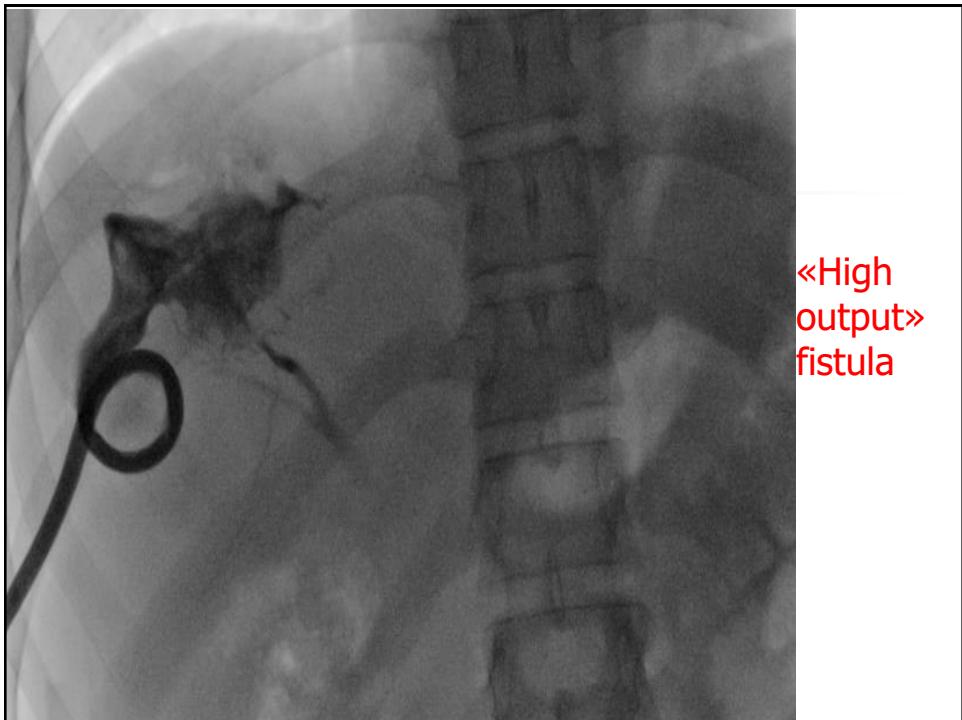


Case-2

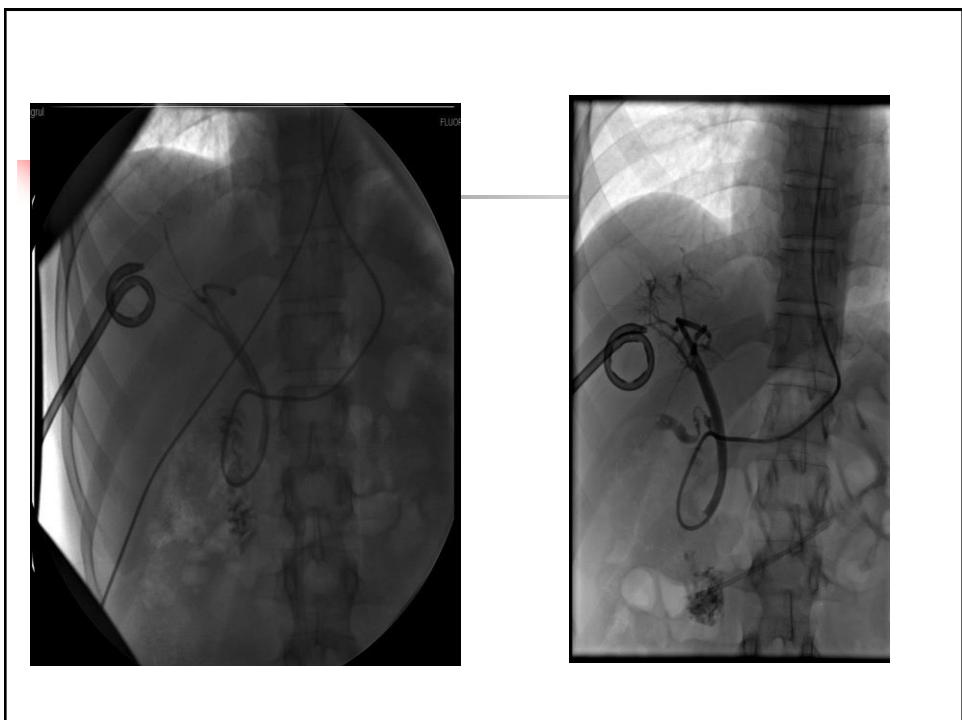
- 30 y-old male
 - CE 2
 - Segment 7
 - Treated by MoCaT



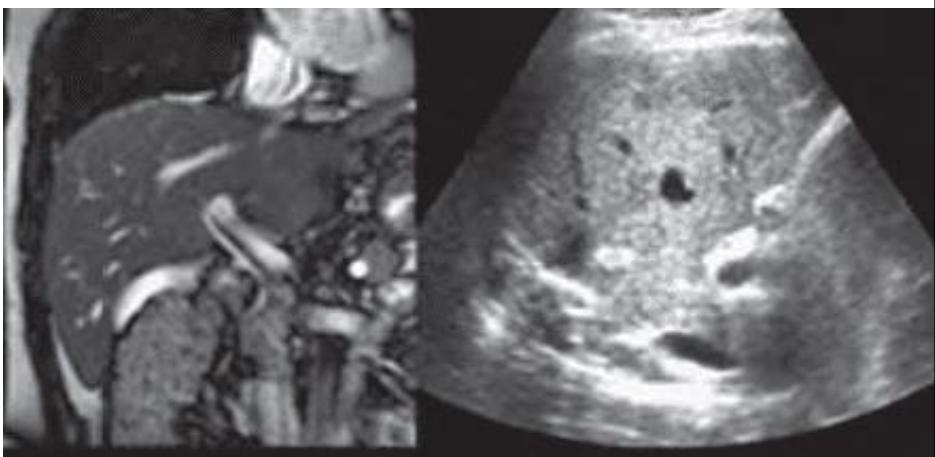




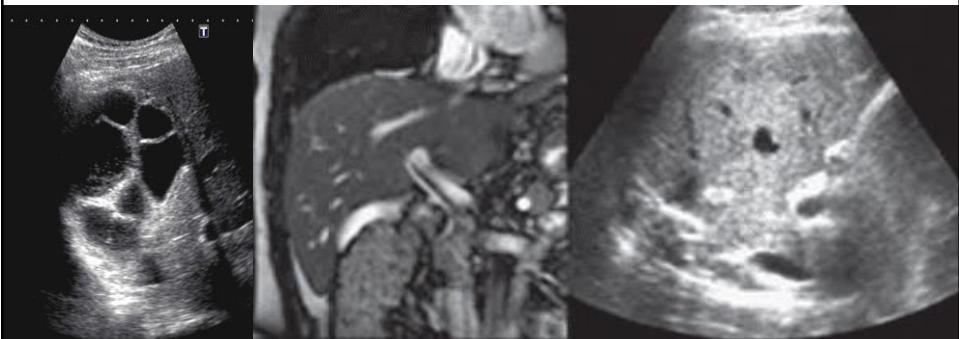
«High output» fistula



3 years later



Pre procedure and 3 years
post procedure





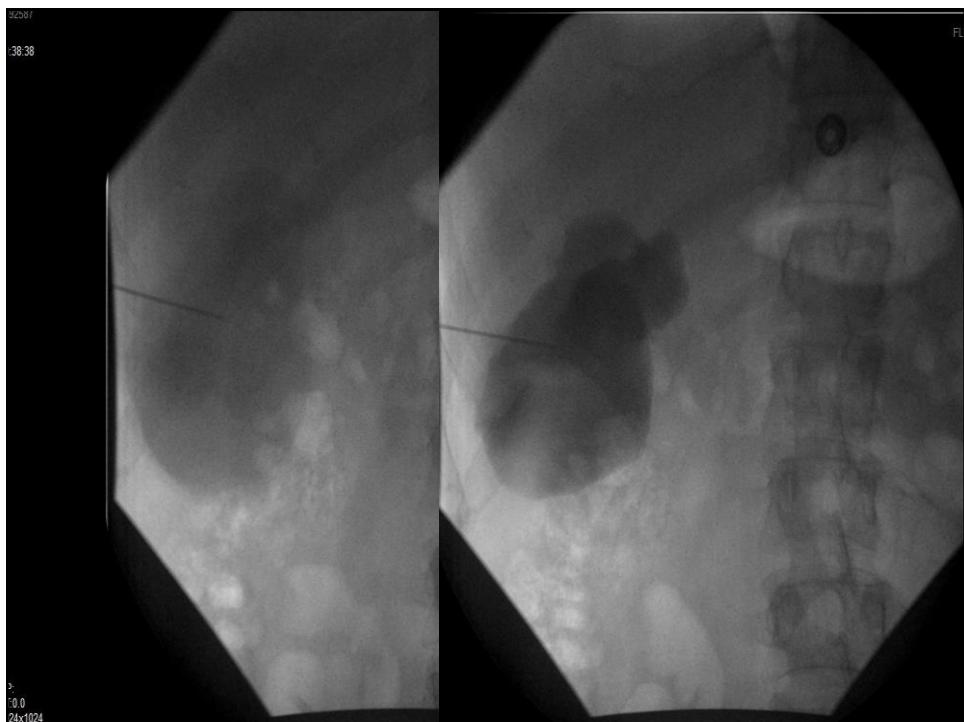
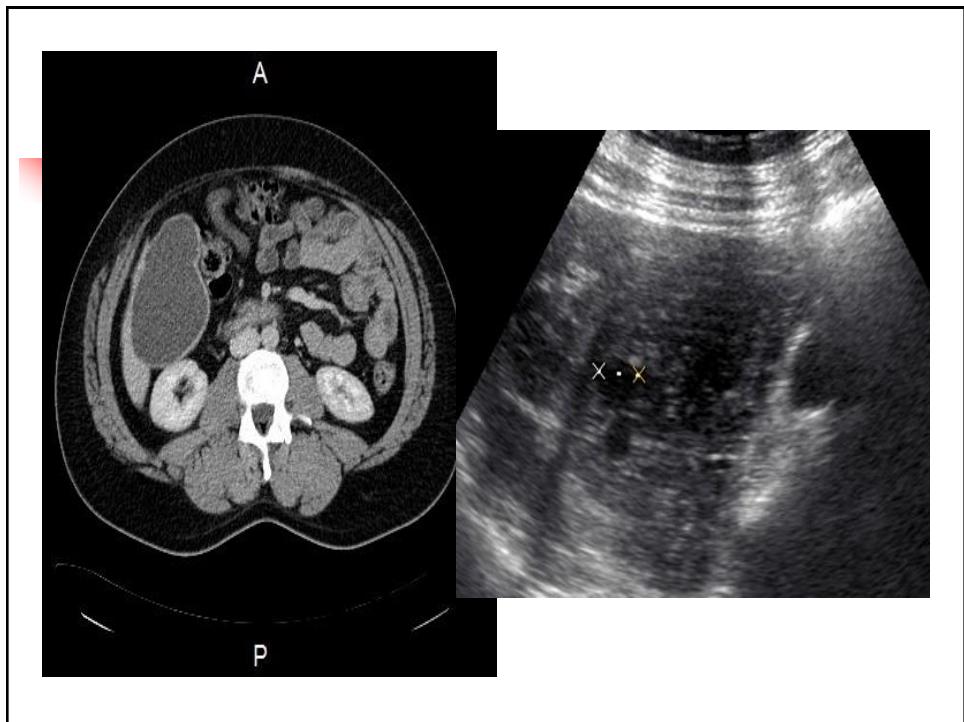
Case-2

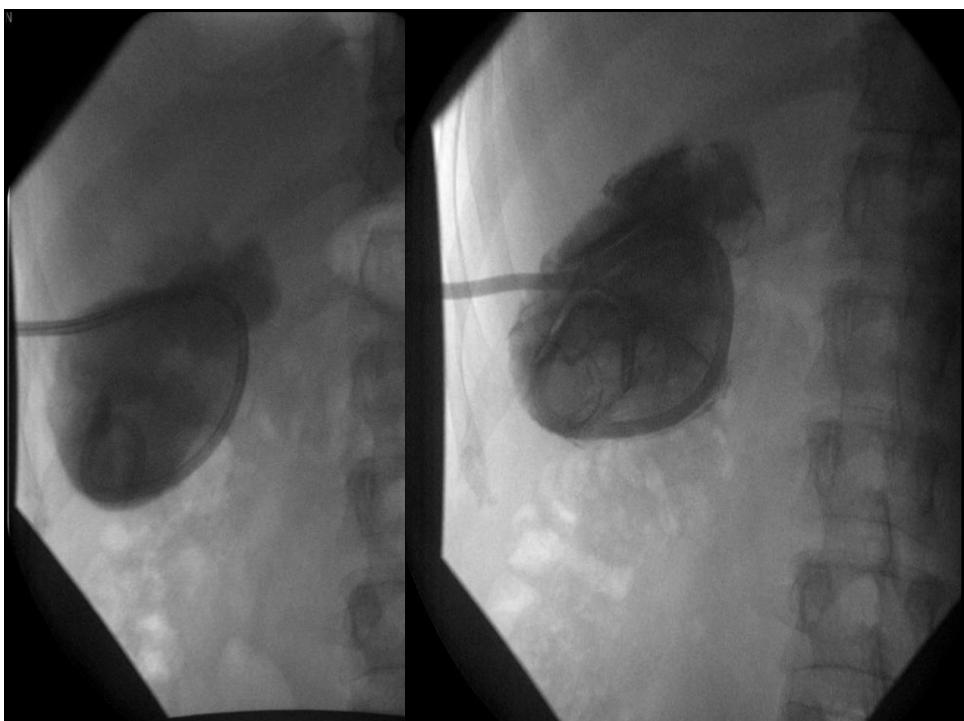
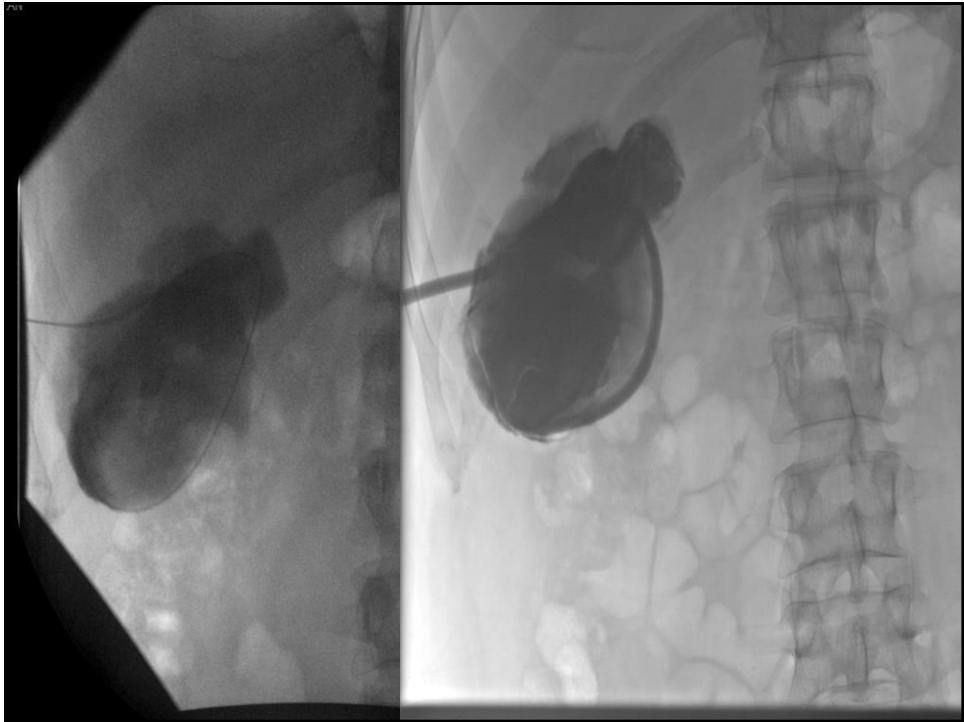
- Hospital stay 1 week
- Catheterization time 4 weeks

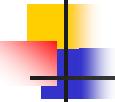
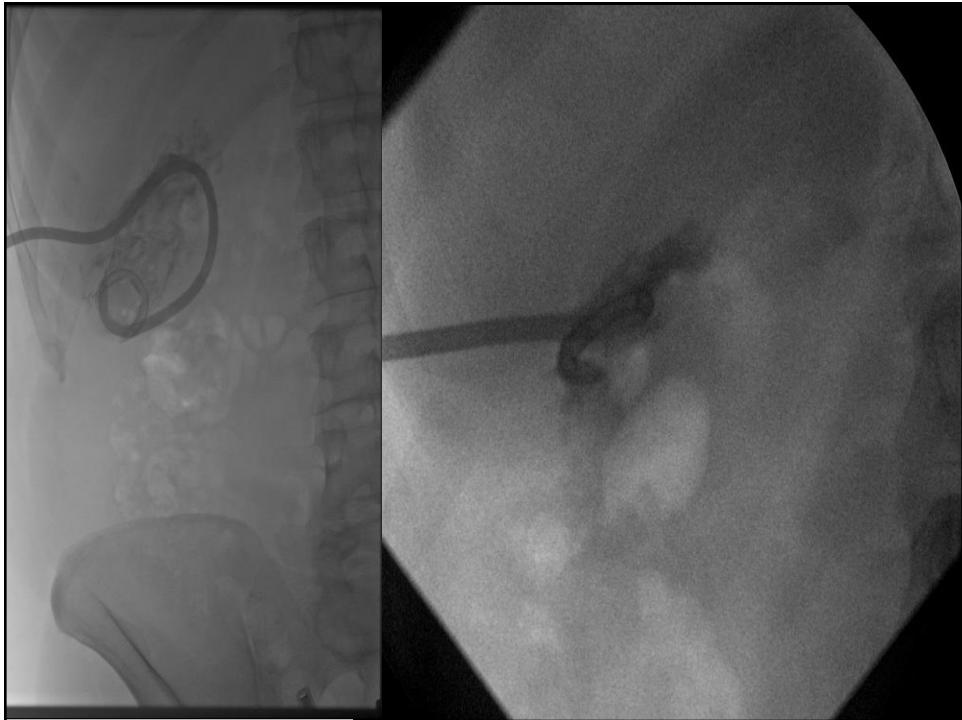


Case-3

- 27 year old male
 - CE 3b
 - Segment 6







Case-3

- Hospital stay 3 days
- Catheterization time 3 days



Treatment results for

WHO	Gharbi
CE 2	Type III
CE 3b	Type III



Akhan O. et al / AJR 2017

- Patients: 73 patients with 75 cysts
- Type :
 - WHO CE2 (41) / CE3b (34)
 - Gharbi Type III
- Techniques:
 - PAIR: 23 (30%)
 - Standart Cath.: 26 (35%)
 - MoCaT: 26 (35%)

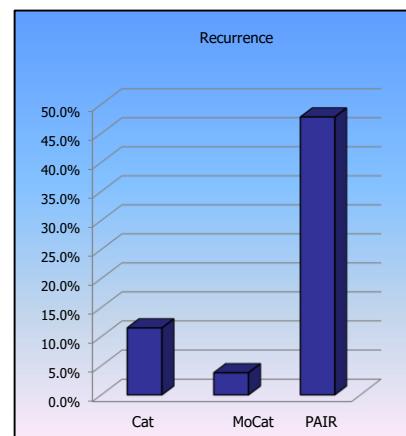
Akhan O. et al / AJR 2017

- Follow-up: 3-197 months (Mean 55)
- Complications
 - Minor: 21.9% (16pts)
 - Major: 16.4% (14pts)
 - PAIR: 0%
 - Stan. Cath.: 11.5%
 - MoCaT: 34.6%
 - Statistically significant difference between PAIR and MoCaT

Akhan O. et al / AJR 2017

- Rec. 20.5% 15 pts
 - PAIR: 47.8% 11 pts
 - Cath.: 11.5% 3 pts
 - MoCaT: 3.8% 1 pts

- More recurrences with PAIR
- Statistically significant difference between PAIR and the others (Cath. and MoCaT)



Results

	PAIR mean	Catheterization mean	MoCaT mean
Duration of Catheterization		3.96 days (1-21)	14.7 days (1-94)
Hospital stay	2.3 days	4.5	10.9

Akhan O. et al / AJR 2017

Conclusion

- MoCaT for CE2 and CE3b
 - Safe and Effective
 - Need for a prospective trial to compare
 - MoCaT and Surgery

Popa CA, Akhan O. Chirurgia 2018

Conclusions-1

- PAIR technique for CE1 and CE3a
- Catheterization technique
 - If a cysto-biliary communication (CBC) occurs during PAIR procedure
 - any technical problem develops during the PAIR procedure such as
 - Insufficient aspiration of cystic content by a needle
 - Insufficient exchange of ethanol

Conclusions-2

- Modified Catheterization Technique MoCaT
 - For CE2 and CE3b
 - As it is associated with
 - Lower recurrence rate over the other percutaneous techniques
 - When we compare with surgery, it is probably associated with
 - Lower recurrence
 - Lower complication rate
 - Shorter hospital stay

Take Home Points

- PAIR
 - Already an accepted technique for
 - CE 1 and CE 3a
- Standard Catheterization technique
 - Indicated if we come up with a technical problem with PAIR
- MoCaT
 - Effective for CE 2 and CE 3b
 - Successful option
 - PRT or meta-analysis indicated

Percutaneous approach

- Cysto-Biliary fistulas

Case-1

- 27 year old female
 - CE3a (WHO) / Gharbi type 2



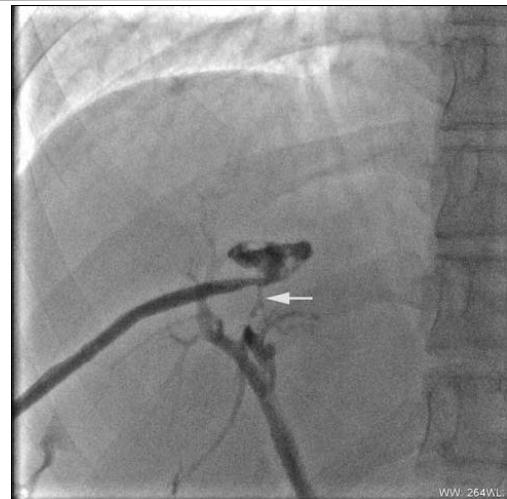
Which percutaneous technique?

1. PAIR technique
2. Catheterization technique
3. Modified Catheterization Technique (MoCaT)



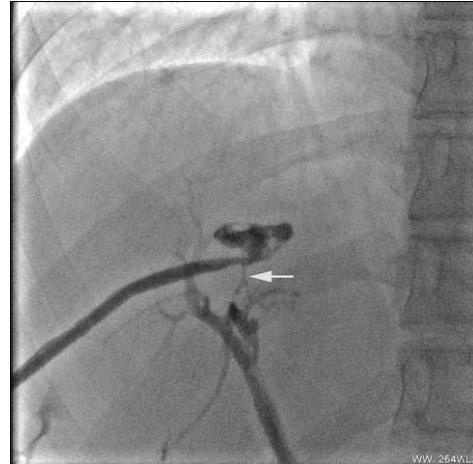
What should we do?

1. Wait for until the drainage stops
2. Surgery
3. Papillotomy
4. Papillotomy
 1. naso-biliyer drenaj
 2. stent

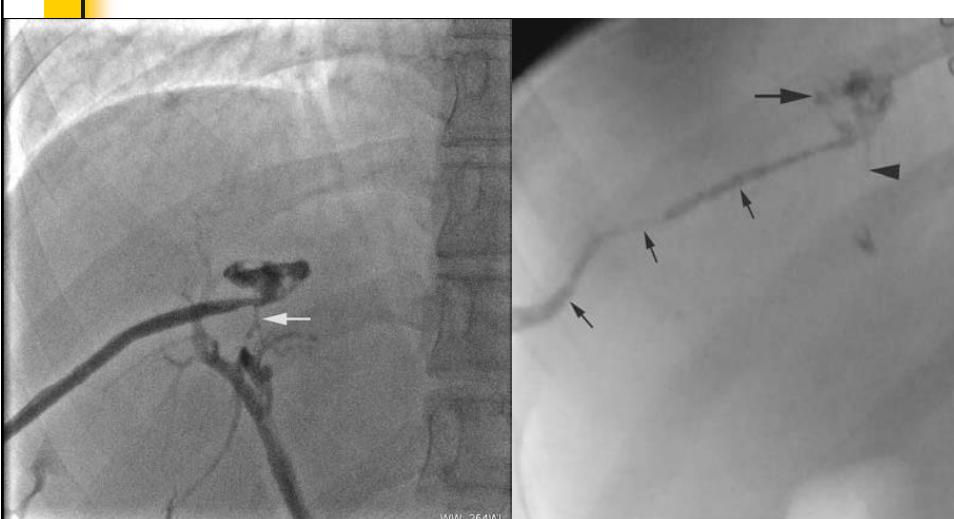


Case-1

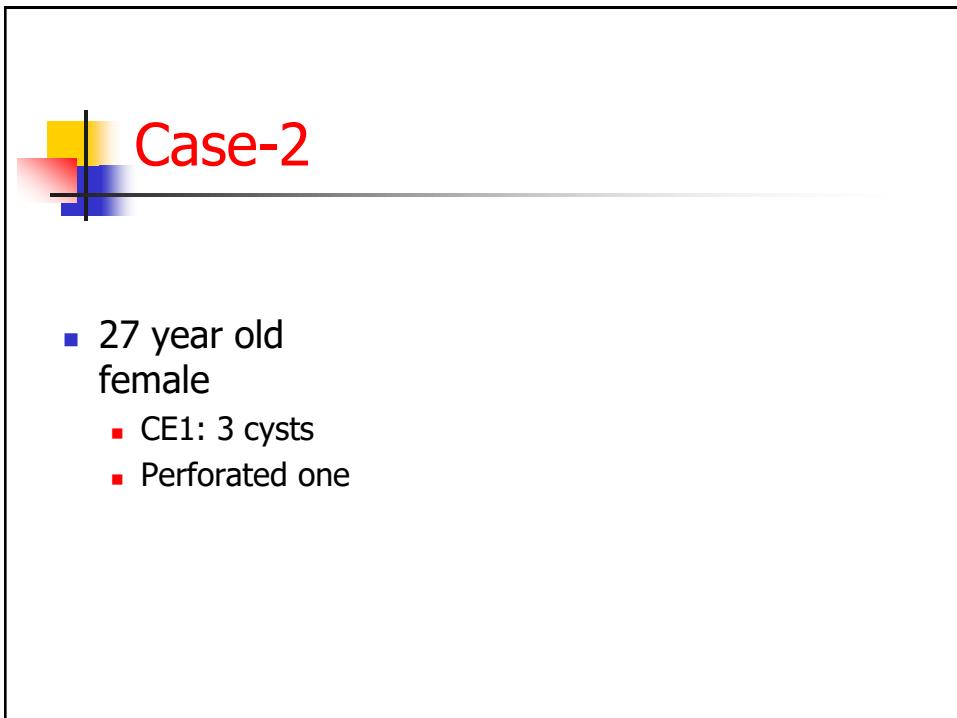
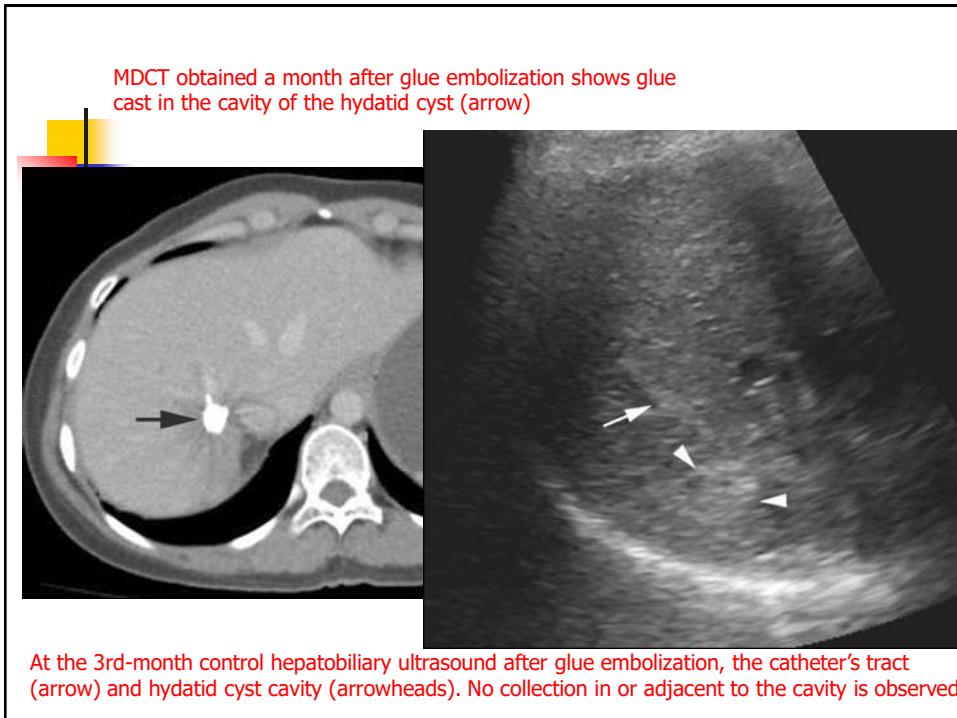
- 4 months CBF
 - Papillotomy
 - Papillotomy with
 - NBD
 - Stent



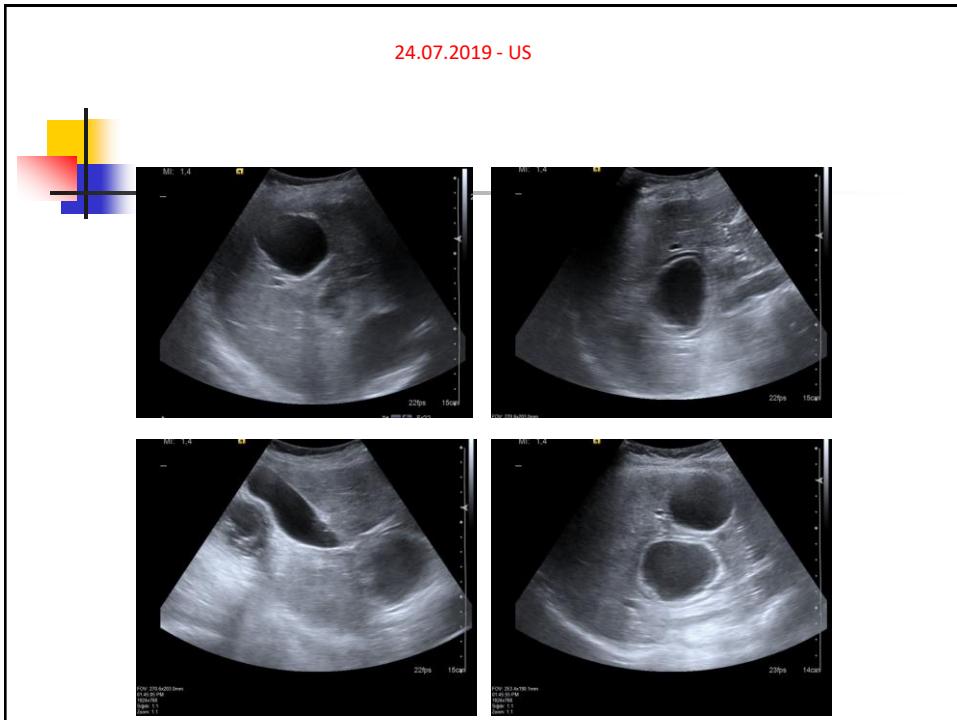
Cavitography obtained 4 months after the first intervention shows a thin fistulous tract (arrow) between the hydatid cyst and the right intrahepatic biliary branch



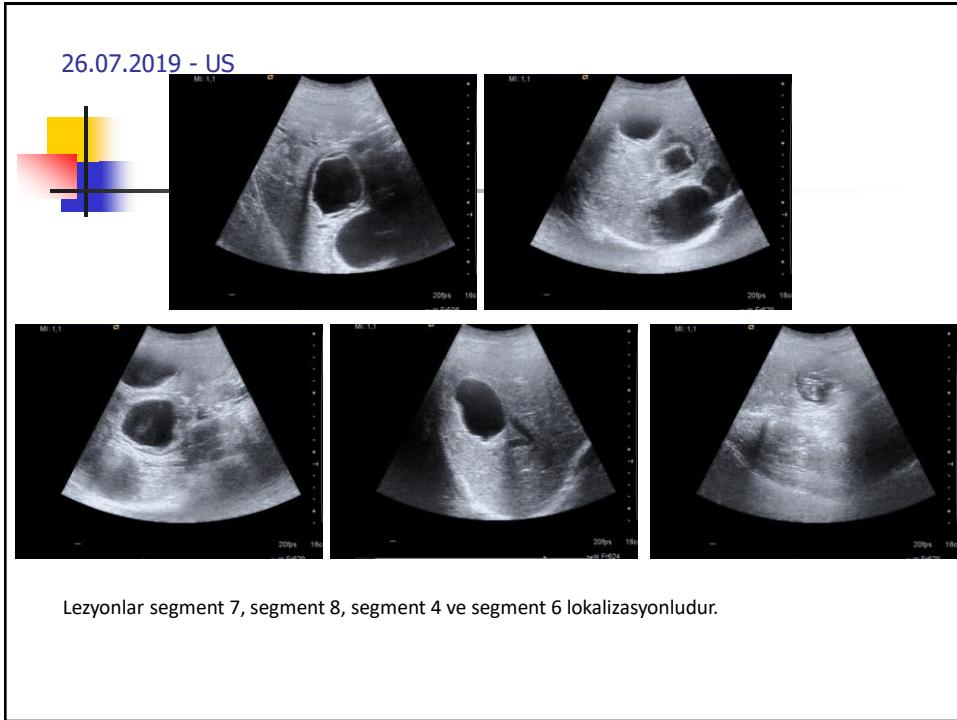
Glue cast in the hydatid cyst cavity (large arrow), fistulous tract (arrowhead), and catheter tract (small arrows)

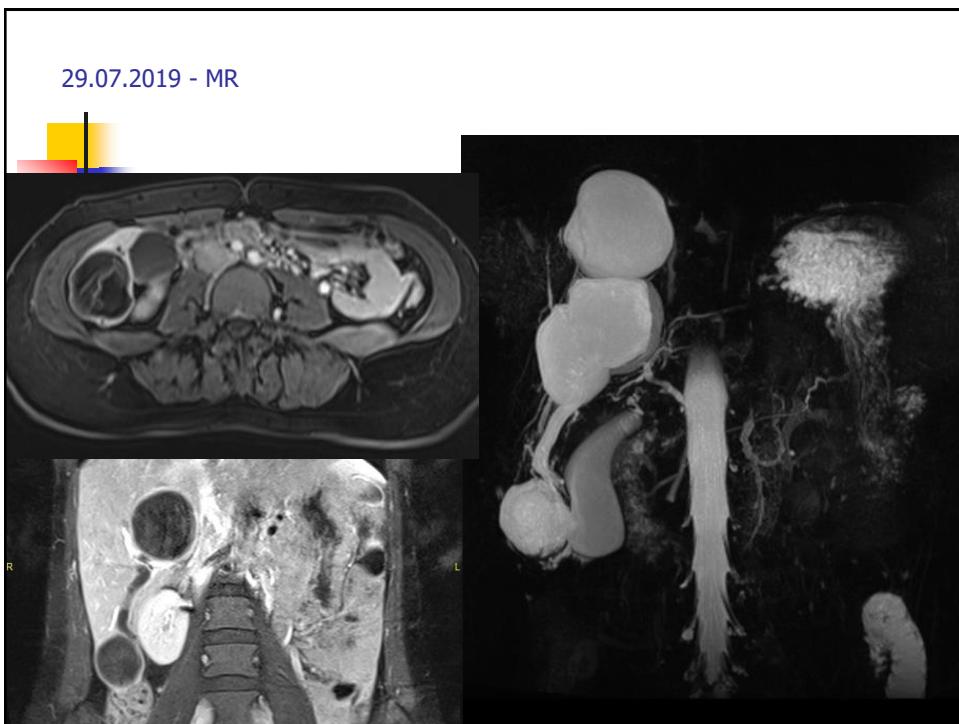
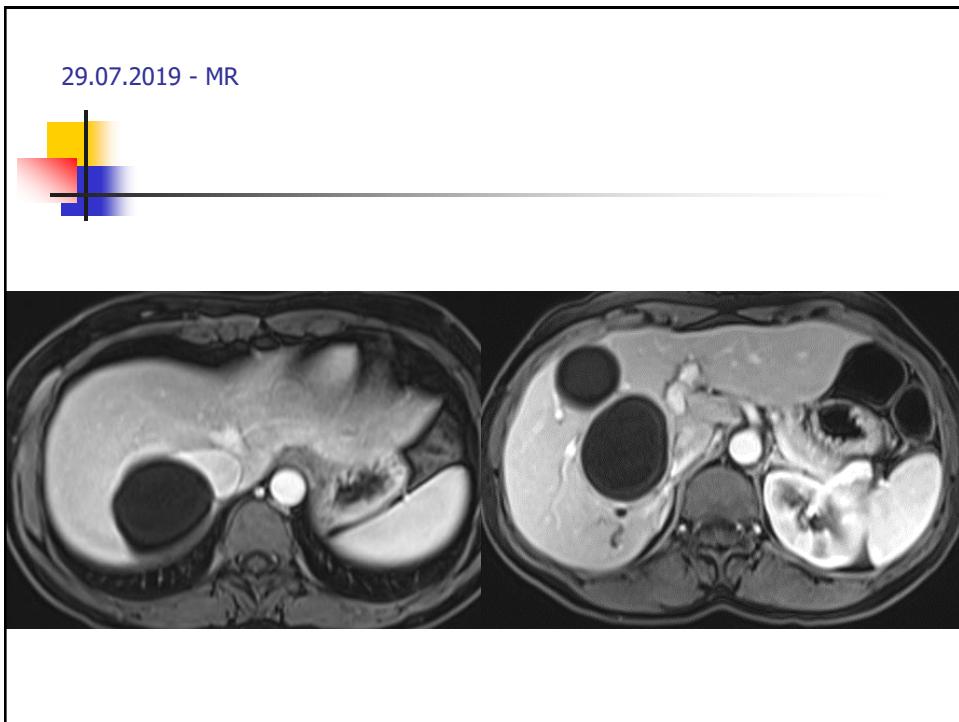


24.07.2019 - US

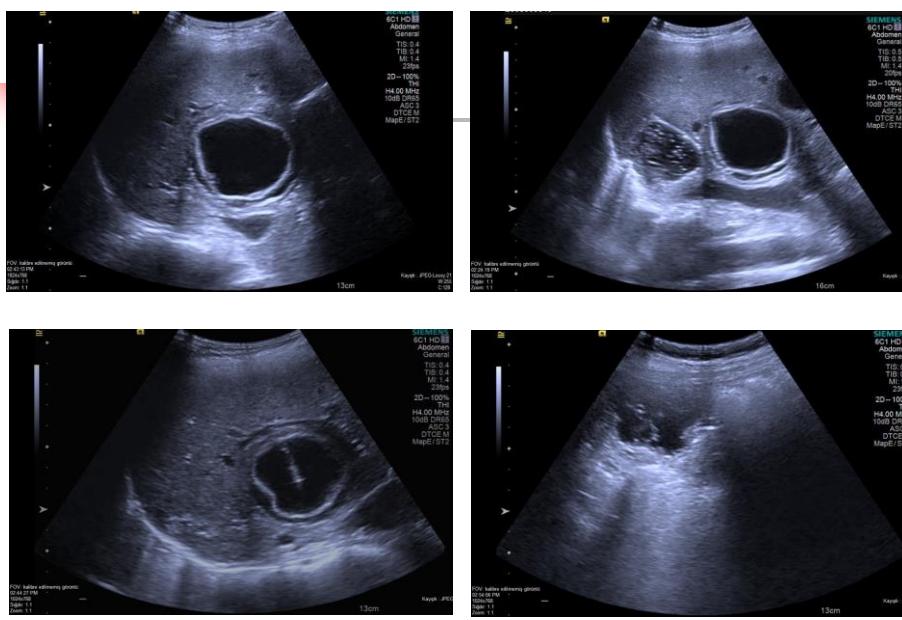


26.07.2019 - US

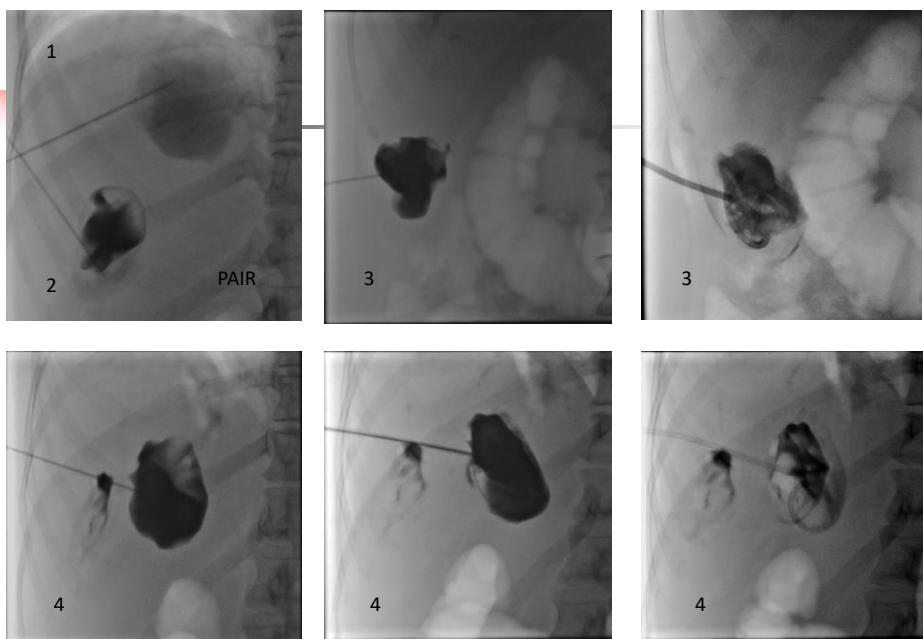




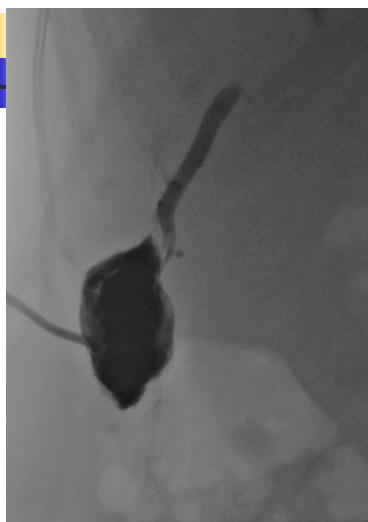
01.08.2019 - US / Procedure



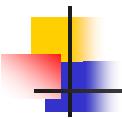
01.08.2019 - XA İŞLEM

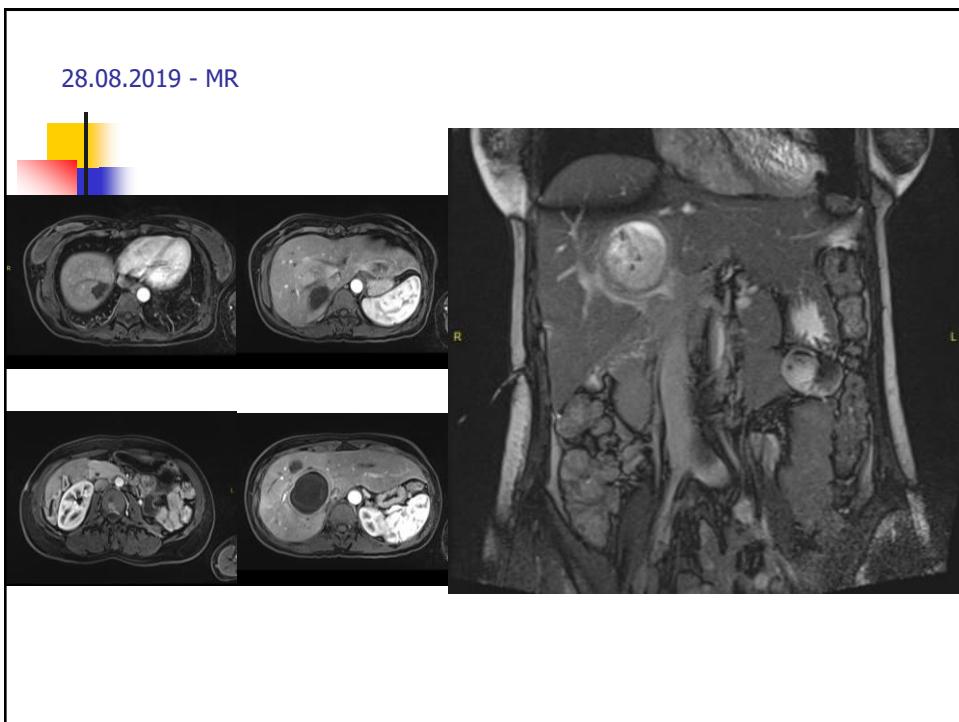
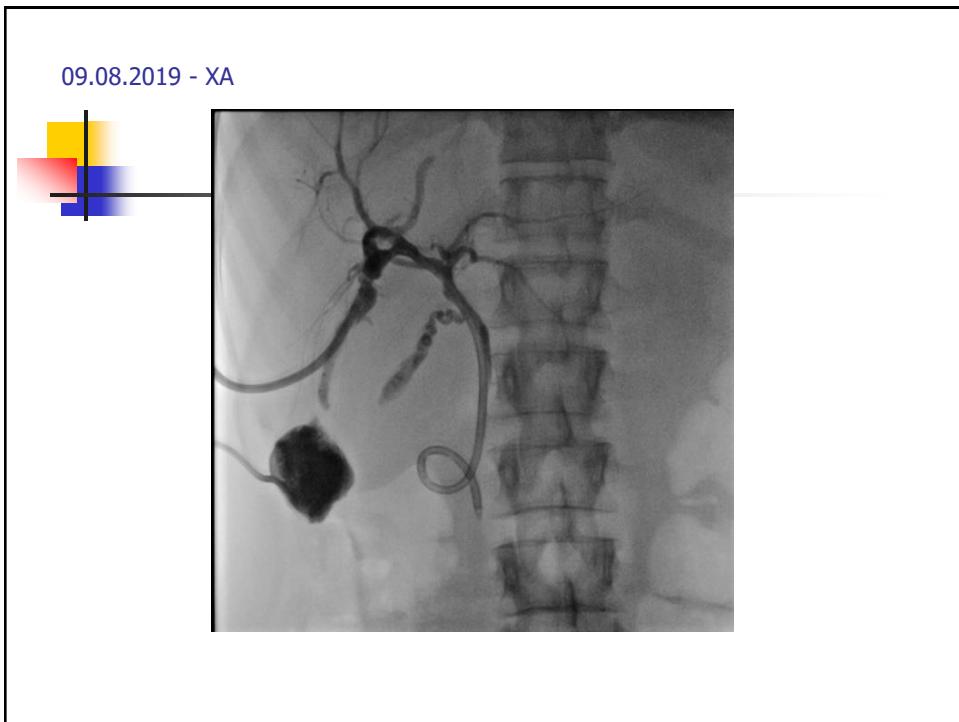


02.08.2019 - XA

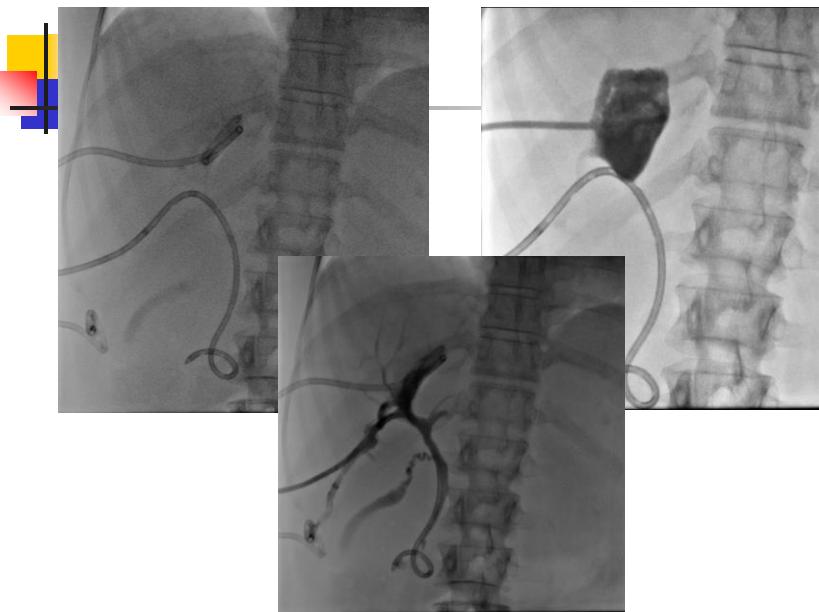


06.08.2019 - XA





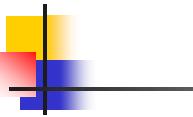
29.08.2019 - XA



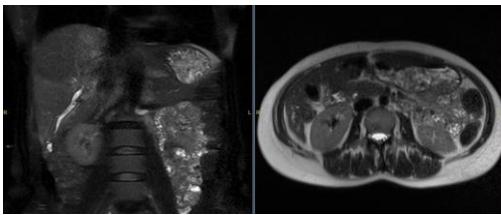
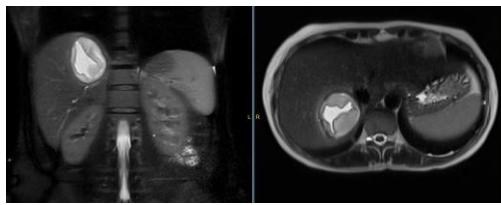
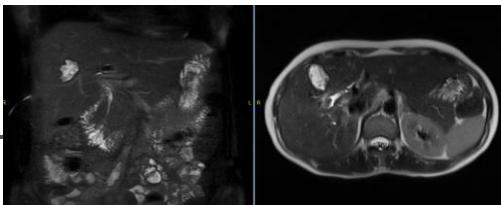
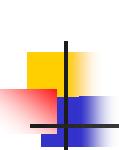
02.09.2019 - XA



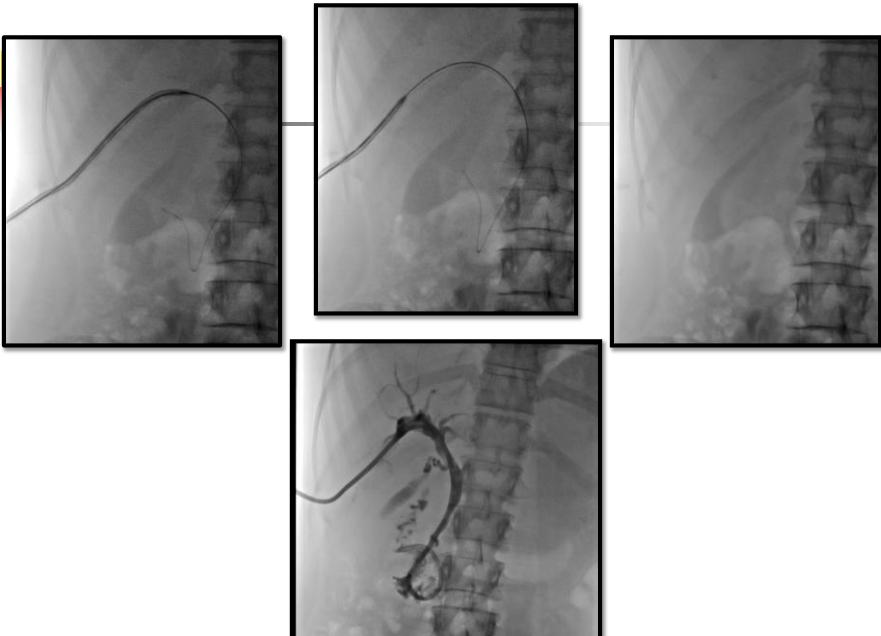
15.10.2019 - XA



18.10.2019 - MR



26.10.2019 -XA



ÖZEL BAYINDIR HASTANESİ TİBBİ LABORATUVAR TETKİK SONUÇ RAPORU					
Laboratuvar Ruhsat No:571-MRSC					
Hasta TC Kimlik:	XXXXXXXXXX		Rapor Numarası:	500014-196-620532602-1025692019	
Hasta No/Vaka No:	2008009549 / 1005344353		İsteem Tarihi:	28/10/2019 10:05 AM	
Hasta Adı Soyadı:	RABİYE CEBEÇİ		Nüansme Alınma Tarihi:	28/10/2019 10:07 AM	
Doğum T.:	15/09/1983 Kadın		Lab. Kabul Tarihi:	28/10/2019 10:25 AM	
İsteyen Doktor:	OKAN AKHAN		Onay Tarihi:	28/10/2019 10:57 AM	
İsteyen Bölüm:	Radyoloji Tetkik Bölümü [Sağdağız]		Kurum:	IG BANKASI GENEL MÜDÜRLÜĞÜ	
BİYOKİMYA TESTLERİ					
Tetkik	Sonuç	Birim	Referans aralığı / Karar Sınır(*)	Önceki Sonuç	
ALP (Alkalen fosfataz)	SERUM	99.0	(35.0 - 104.0)	96.0 (26.10.2019)	
SGOT (AST)	SERUM	16.2	U/L	(5.00 - 32.00) 15.3 (26.10.2019)	
SGPT (ALT)	SERUM	8.20	U/L	(5.00 - 33.00) 9.0 (26.10.2019)	
Total Bilirubin	SERUM	0.310	mg/dL	(0.3 - 1.3) 0.30 (26.10.2019)	
Direkt Bilirubin	SERUM	0.180	mg/dL	(0.1 - 0.5) 0.150 (26.10.2019)	
CRP (Turbidimetrik):	SERUM	2.15	mg/L	(0.0 - 6.0) 0.540 (26.10.2019)	
Prokalsitonin	SERUM	< 0.020	ng/mL	(0.00 - 0.049) < 0.020 (26.10.2019)	
1:septik ok için düşük risk 0,50 - 0,49 2:septik ok için orta risk 0,50 - 1,99 3:septik ok için yüksek risk 2,0 - 29,9 4:idetelli sepsis için yüksek risk 2,0 - 100,0 5:septik ok için çok yüksek risk 2,0 - 1000,0					
Gama-GT	SERUM	50.8 *	U/L	(6.00 - 40.00) 54.8 (26.10.2019)	
HEMATOLOJİ TESTLERİ					
TAM KAN SAYIMI 24 PARAMETRE					
Tetkik	Sonuç	Birim	Referans aralığı / Karar Sınır(*)	Önceki Sonuç	
Lökosit	4.96	bin/mm3	(4.5 - 11.0)	5.83 (26.10.2019)	
Eritrosit	4.25	milyon/mm3	(3.8 - 5.1)	4.20 (26.10.2019)	
Hemoglobin	> 10.3	g/dL	(11.7 - 15.5)	10.4 (26.10.2019)	
Hematokrit	> 33.3	%	(35.0 - 45.0)	32.9 (26.10.2019)	
MCV	> 78.4	fL	(81.0 - 100.0)	79.3 (26.10.2019)	
MCH	> 24.2	pg/hucre	(27.0 - 34.0)	24.8 (26.10.2019)	
MCHC	> 30.9	g/dL	(32.0 - 36.0)	31.6 (26.10.2019)	
Platelet	454.000 *	bin/mm3	(130 - 400)	466.00 (26.10.2019)	
RDW-SD	42.1	fL	(37.0 - 54.0)	41.3 (26.10.2019)	
RDW-CV	14.7	%	(11.0 - 16.0)	14.6 (26.10.2019)	
PDW	9.90	fL	(9.0 - 17.0)	9.50 (26.10.2019)	
*Tüm Laboratuvar Testlerinde Atilık Bulgular eşliğinde, laikçe eden doktorunuz tarafından değerlendirilmelidir. Onan, oktan					



Thank you
for your attention