Remnant Gall Bladder and Cystic Duct Stump Stone After Cholecystectomy; Tertiary Multicenter Experience

By

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- A 45 years female complaining of severe Rt. upper ~~abdominal colicy pain mainly with fatty meal referred to~~ the RT. Shoulder with infrequent vomiting followed by frequent hospital admission for medical treatment and discharge.
- She give a history of open cholecystectomy 6 months ago with unknown data.
- Lab investigation was somewhat normal apart from leukocytosis.
- Abdominal sonar revealed residual stone filled cystic cavity at the undersurface of the liver.
- MRCP also confirmed this diagnosis.

Diagnosis?

- The patient was diagnosed as residual stone filled gall bladder remnant. And assigned for lap. Completion cholecystectomy

- The Gold standard for treatment of symptomatic gallstones is laparoscopic cholecystectomy; however in some patients the symptoms may persist after surgery, what's called **post-cholecystectomy syndrome (PCS)**.

The cause of PCS is often non biliary, in spite a few of these patients may actually harbor gallstones in a residual gall bladder or cystic duct stump. The reported incidence of this challenging consequence is <2.5%.

- Schofer JM et.al; 2008

- In comparison to conventional cholecystectomy; the incidence of incomplete gallbladder removal following laparoscopic cholecystectomy (LC) is high up to 13.3%; and may be due to poor visualization of gallbladder fossa during surgery, adhesions, recurrent inflammation, bleeding, frozen Callot's triangle, or confounding gallbladder morphology.

- Walsh RM et.al; 2002 - Beldi G et.al; 2003

Aim of the study

The present study was conducted to evaluate those patients, with tertiary multicenter experience in diagnosis and treatment of cystic duct or gall bladder remnant after cholecystectomy.

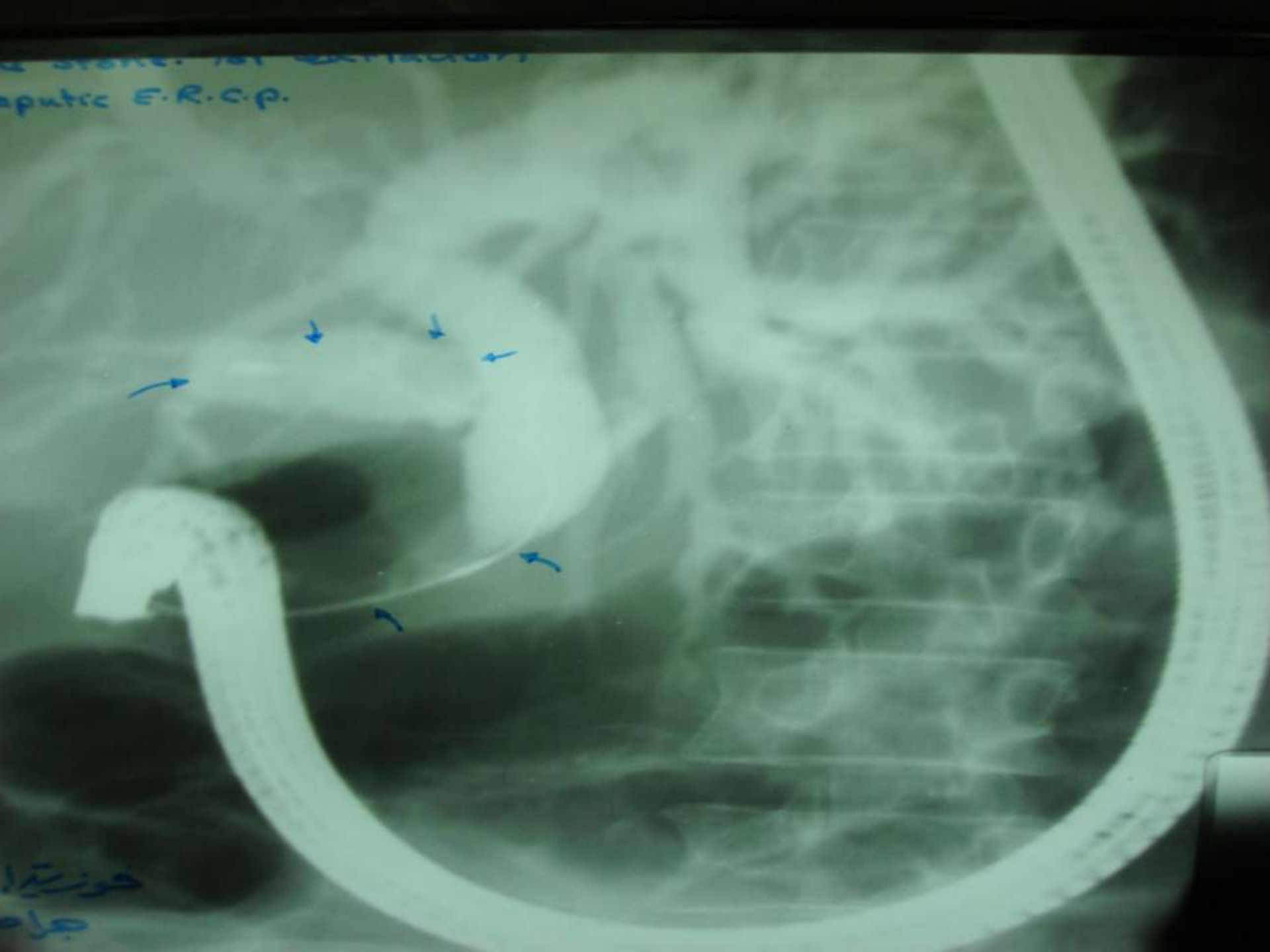
Patients and methods

- In a period between April 2013 to January 2018, data was retrospectively searched for post cholecystectomy cases of residual gallbladder or cystic duct stones at Sohag, Assuit, and Qena University Hospitals which underwent either conventional open or laparoscopic completion cholecystectomy.

We founded 27 cases with residual gallbladder/cystic duct stump stone (15 cases of residual gallbladder and 12 cases of cystic duct stump stone) following previous cholecystectomy operation either open or laparoscopic varying from 9 months to 14 years back.

- Nearly all of our studied patients were operated for initial cholecystectomy at other centers, and details of previous surgery notes could not be retrieved.
- All patients were symptomatic for more than 6 months prior diagnosis and treatment, mainly presented by recurrent upper abdominal pain, dyspepsia, jaundice.

- All patients were subjected to thorough history taking, physical examination, and laboratory work up as CBC, liver function tests, kidney function tests, blood sugar, and coagulation profile.
- Imaging studies was done for patients including abdominal sonar, and MRCP, however ERCP was done for patients presented with jaundice (13 cases) for relieve of CBD obstructive element, but stones in the cystic duct stump or remnant gall bladder was not negotiated by ERCP for trial of extraction.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Operative techniques

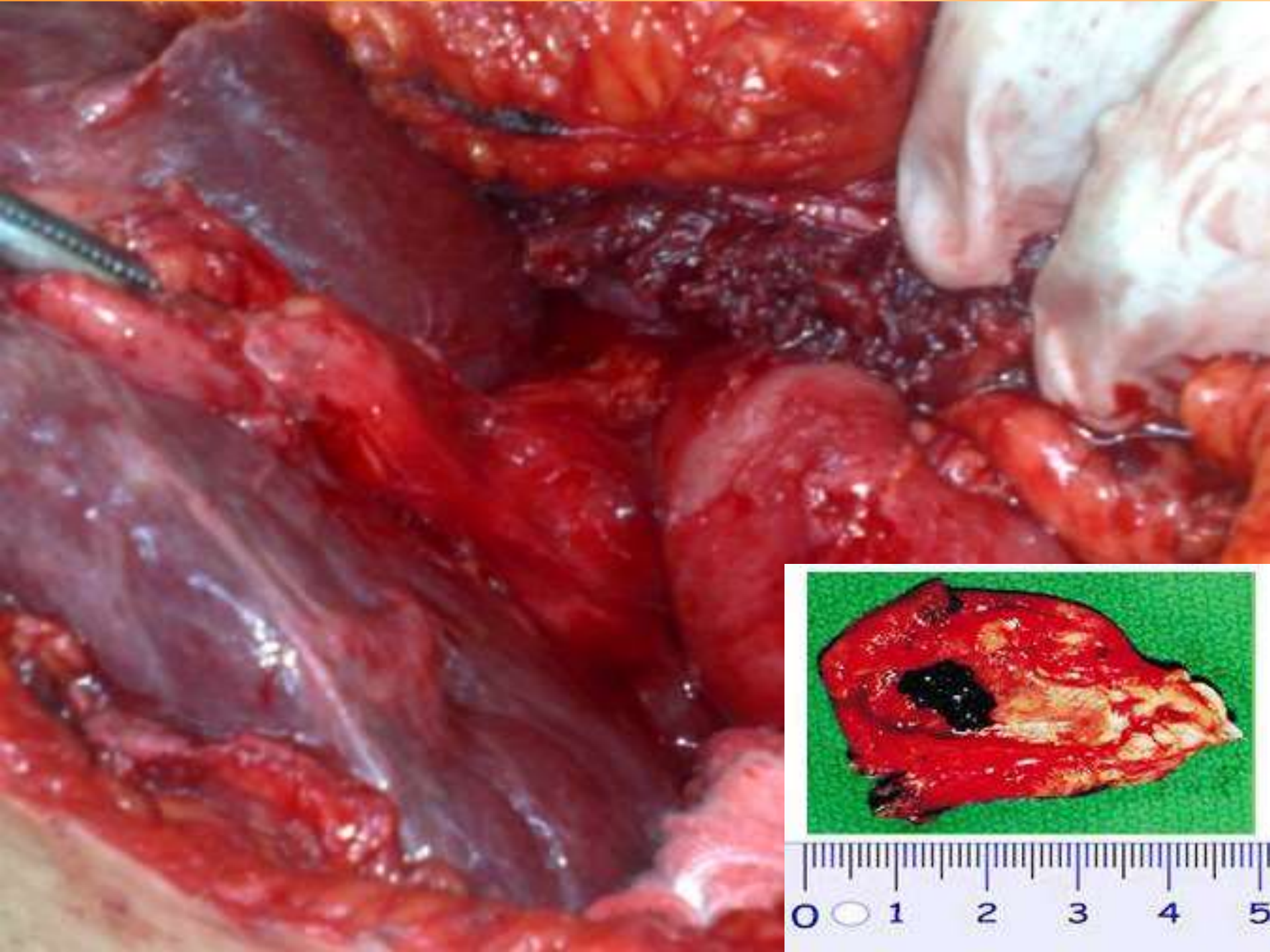
All surgeries were done by the same experienced surgical team, under general anesthesia with standardized techniques.

- 21 patients were dealt with using conventional open completion surgery, while 6 cases was treated by laparoscopic completion cholecystectomy.

Conventional surgical was done through right Kocher's subcostal incision, while access to peritoneal cavity during laparoscopic procedure was done through Palmer's point, open Hasson's technique, or by optical port, followed by standard 4 port laparoscopy procedures; all were applied strictly under vision.

- Identification of the liver was an important anatomic landmark for initial dissection and adhesolysis commenced till exposure of the gall bladder fossa.
- The duodenum was another independent anatomic landmark for identification of CBD and adjacent vessels, and also the lateral fissure of the liver was of great help for identification of the porta hepatis.

- The gall bladder remnant or cystic duct stump was dissected free from surrounding colon and omentum using energy machine (harmonic share or ligasure device) helped by its stone content as another landmark, and lastly resected with ligation of the cystic duct.
- An abdominal hemostatic drain was placed in all patients and removed prior discharge.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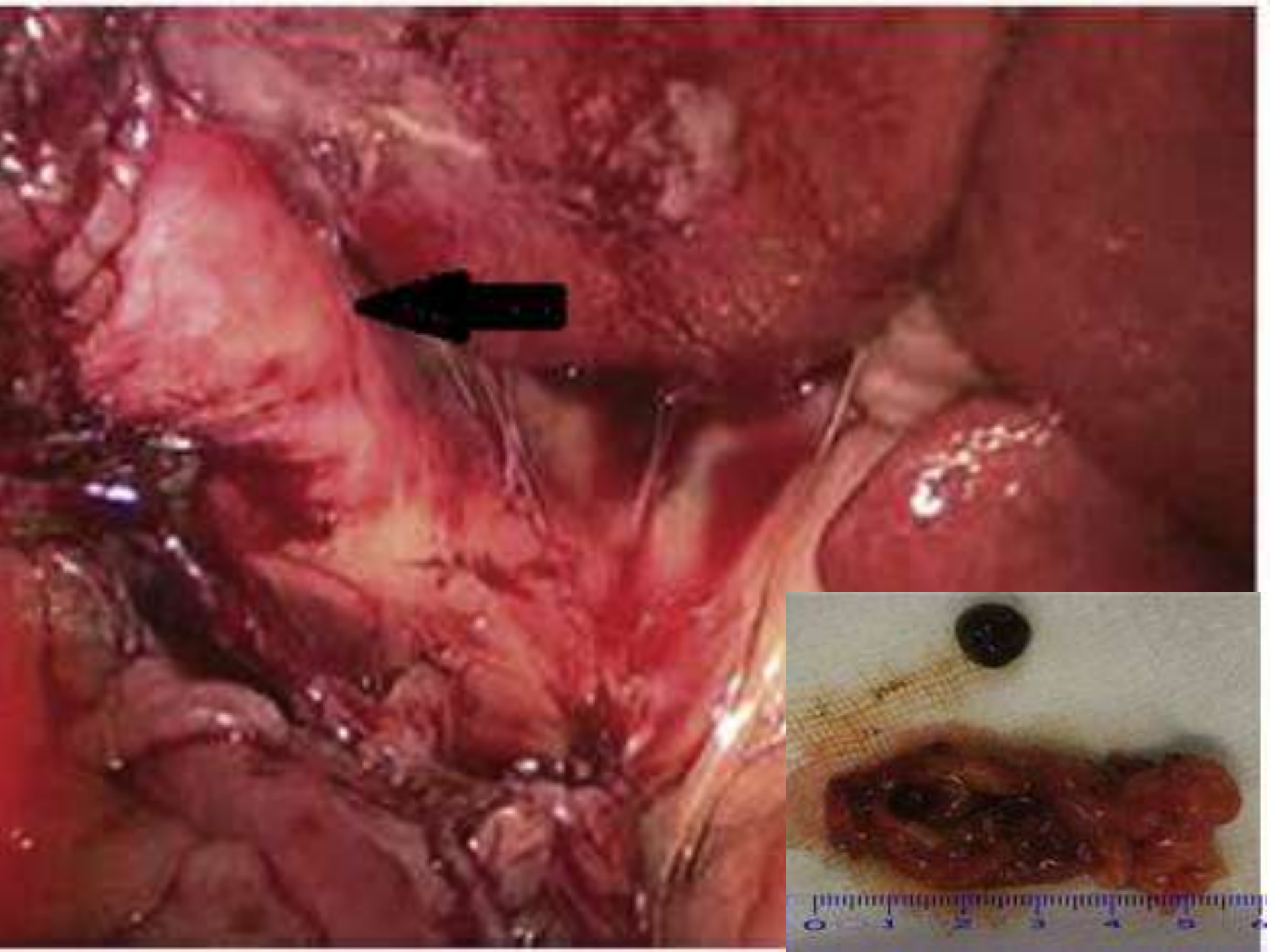

Variable	Number	Percent
Age: ->50	9	33.3%
-<50	18	66.7%
Gender: -male	7	25.9%
-female	20	74.1%
Initial cholecystectomy operation:		
-open	24	88.9%
-laparoscopic	3	11.1%
Duration after Cholecystectomy:		
-Early (<2 years)	25	92.6%
-Late (>2 years)	2	7.4%
Residual stone encountered in:		
-Remnant GB	15	55.6%
-Cystic duct stump	12	44.4%
The presenting complaint:		
-abdominal pain	27	100%
- jaundice	13	48.1%
-dyspepsia	21	77.8%
-others	6	22.2%

Intra- and post-operative outcomes	Number	Percent
Operative treatment technique:		
-open completion	21	77.8%
-lap. completion	6	22.2%
Operative time (min.) -open	Mean (89.57 ± 12.05) min.	
-laparoscopic	Mean (118.16± 12.6) min.	
Blood loss (ml) -open	Mean (195.5± 19.22) ml.	
-laparoscopic	Mean (187.5± 23.61) ml.	
Packed RBCs transfusion(cc) -open	0	-
-laparoscopic	0	-
Plasma transfusion(cc) -open	3	11.1%
-laparoscopic	0	-
Length of hospital stay(days) -open	Mean (4.76±2.81)	
-laparoscopic	Mean (2.33+1.32)	
Length of ICU admission(days)	0	-
Biliary injury -open	2 (7.4)	7.4%
-laparoscopic	0	-
Mortality rate	0	-

- The main time interval between the initial cholecystectomy approach and diagnosis of retained stone in residual gall bladder/cystic duct stump in our series was 4.5 years (range between 9 months – 14 years.
- The primary diagnosis in our series was established by expert abdominal ultrasonography in 88.8% of cases (24 patients), however ERCP was the primary diagnostic modality in 13 patients (48.1%) presented with obstructive jaundice, but the gold standard of diagnosis was MRCP that was needed in nearly all cases.

- The abdominal ultrasonography report diagnose and clearly mentioned stone in the residual gall bladder in 12 out of 15 cases (80%) diagnosed in our series (the remaining 3 cases was somewhat vague and mentioned an echogenic focus in the gall bladder fossa).
- Moreover the expert report clearly identified and mentioned stone in cystic duct stump in 8 out of 12 cases (66.6%) diagnosed in our series, the remaining were clearly diagnosed by the gold standard MRCP, or ERCP.

- The nature of intervention in our series was surgery either open completion cholecystectomy in the majority of cases (21 cases, 77.8%), while laparoscopic approach was feasible in only 6 cases (22.2%) with one conversion.
- The mean operative time was 120±30 min., and the mean blood loss was 160±50 ml.

- Fortunately, no mortality detected in our series, and no major morbidity, apart from minor complications included intra-operative minor biliary injury that was encountered in 2 cases, discovered intraoperatively and treated by instantaneous repair, and wound sepsis in 3 cases which responded to repeated drainage/dressing.

- Hemostatic tubal drain was done in all patients, and lasted for 2-6 days, and the mean hospital stay was 3±1.7 days (range 1 - 8 days).

- All patients was followed up after surgery, with the mean follow up time of 1.8 years (range between 4 months - 4.9 years post operatively), and all patients were reported to be symptom free after surgical interventions.

Conclusion

- Residual GB/cystic duct stump stone is a preventable and correctable cause of post-cholecystectomy complaint.
- Completion cholecystectomy is a proven treatment of choice to relieve symptoms and avoid complications, and, furthermore, it can be carried out laparoscopically.

THANK YOU

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