

Dilatation of the Common Bile Duct and Gallstone Formation

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Received for Publication April, 25, 1975

Many surgeons supposedly believe that dilatation of the common bile duct and stone formation in the duct are the result of stricture of the distal end of the duct caused by so-called papillitis. But what is the cause of papillitis?

Some decades ago, round worms and other parasites were incriminated as a cause of papillitis. We have operated on a few patients of choledocholithiasis accompanied by stricture of the papilla supposedly caused by ascaris, and have done sphincteroplasty for these cases. Nowadays, however, ascariasis is seldom seen in Japanese people, even in rural people.

As shown in Table 1, common duct stones are still not infrequently seen in our hospital, and almost all of the stones found in the common bile duct solely are pigment stones which should be classified as "Stasis stone-primary in common duct" according to ASCHOFF's

Table 1 Sites of gallstones

YEARS	No.	G. B.	G. B. & C. B. D.	C. B. D.
54-56	19	4	4	11
57-59	28	9	8	11
60-62	39	17	7	15
63-65	54	32	7	15
66-68	72	40	7	25
69-71	102	65	21	16
72-74	178	132	20	26
TOTAL	492	299	74	119

G. B. : Gallbladder

C. B. D. : Common bile duct

Table 2 Aschoff's classification of gallstones

I. Inflammatory
II. Metabolic
A. Pure pigment
B. Calcium bilirubinate
C. Pure cholesterol (solitaire)
III. Combination stone
Primary metabolic and secondary inflammatory
IV. Stasis stone-primary in common duct, Earthy

classification (Table 2)¹⁾. In these cases, moreover, the common bile duct are almost always hugely dilated, with or without stricture of the papilla of Vater, the findings being coincident with MADDEN's¹⁾ cases. He has reported that these primary stones are most commonly found in ducts which are hugely dilated and associated with stenosis of the papilla of Vater in

Key words : Dilatation of the common bile duct, Stasis stone-primary in common duct, Supraduodenal choledochoduodenostomy

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approximately one of every two patients. And he has stated "Paradoxically, primary stones do form in ducts which are widely dilated and yet have patulous sphincter of Oddi. The mechanism for this association is not known."

A representative case is presented as follows.

Case : A 51 year old house-wife was admitted to our hospital complaining of recurrent shaking chills, fever, and right upper abdominal pain for several days.

About 20 years ago, she had been operated upon somewhere for acute cholecystitis, the detail of the operation of being not obtained, and she had been remained well for the last 20 years.

Her endoscopic pancreaticocholangiogram shown in Fig. 1 visualized the hugely dilated

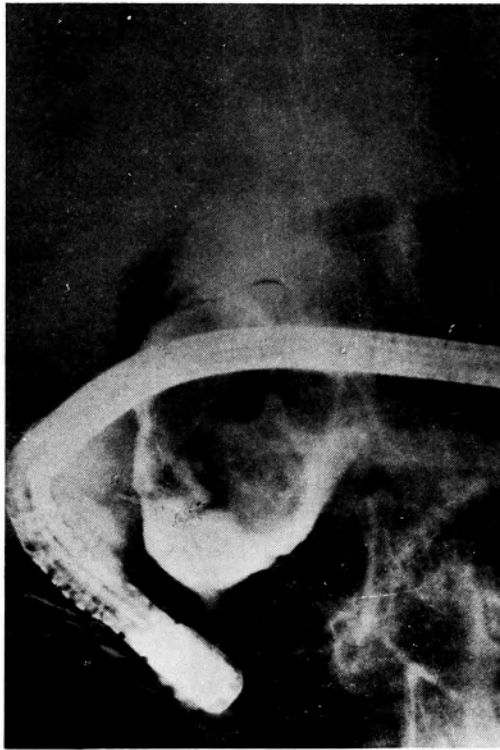


Fig. 1

common bile duct containing many large stones.

On laparotomy, the common bile duct dilated to a diameter of 5 cm and contained many pigment stones (Fig. 2). The gallbladder had been removed already.

A choledocholithotomy was done and 6mm Bakes' dilator was passed freely into the duodenum without any resistance.

Operative cholangiogram showed dilatation of both the extra-and intra-hepatic biliary tract, but no residual stones, and the contrast media flowed freely into the duodenum.

A supraduodenal choledochoduodenostomy was done, the orifice of the anastomosis being 3 cm in diameter.

The postoperative G-I series using Gastrographin on the 20th postoperative day showed

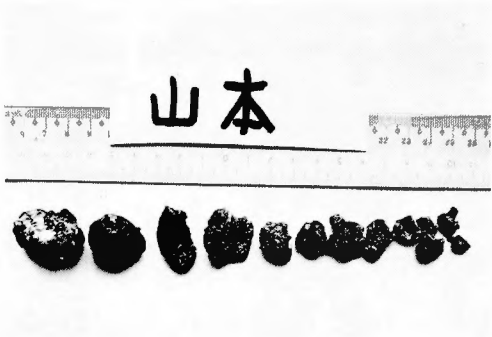


Fig. 2

free reflux of the dye into the bile duct and then free passage into the duodenum through the papilla (Fig.3).

She has been in good health for one year after the operation.

Comment

At the 100th Meeting of Kinki Surgical Association held at Kyoto in 1966, the authors reported on seven cases of recurrent choledocholithiasis and referred to the indication of choledochoduodenostomy as a preventive measure against recurrence²⁾

MADDEN et al. in 1968 emphasized the surgical significance of “Stasis stone-primary im common duct” and stated that supraduodeual choledochoduodenostomy was mandatory.

LONGMIRE et al.³⁾ in 1970 depicted the three types of nonobstructive dilatation of common bile duct: (1) congenital cystic dilatation of the common duct, (2) hypotonia of the common duct, and (3) inflammatory choledochitis (Fig. 4).



Fig. 3

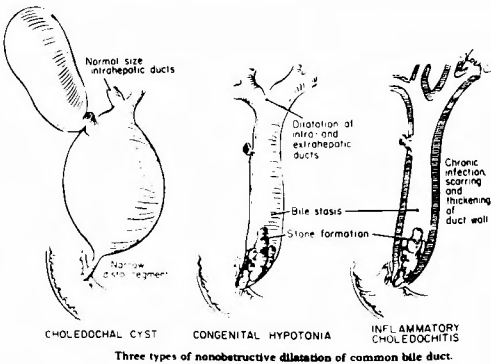


Fig. 4³⁾

The differentiation of the latter two conditions is difficult, as pointed out by LONGMIRE.

but it appears that they can be differentiated by the nature of the stones.

If the stones obtained at the first operation were pure cholesterol or mixed ones, then the common duct stones found at secondary operation should be either residual stones (pure cholesterol or mixed) or recurrent stones (pigment) caused by common bile duct dilatation due to inflammatory cholelithiasis. If the stones of the first operation on the contrary, were stasis stones, then the congenital hypotonia of the bile duct should be the cause of stone formation.

Since, unfortunately the findings and nature of the stones at the first operation could not be obtained in the case presented herein, the differentiation could not be done.

As LONGMIRE³⁾ pointed out, however, a dilated, inert tube without obstruction but serving as a sluggish reservoir in which earthy stones form is present in both conditions, and functional elimination of that part of the duct is indicated.

Supraduodenal choledochenterostomy is one of the indicated procedures, and sphincterotomy or sphincteroplasty is, of course, not indicated.

Summary

A case was reported of gallstones which resided in the hugely dilated common duct without stricture of its terminal portion.

A brief mention was made on the pathogenesis of the common bile duct stones and on the three types of nonobstructive dilatation of the common duct i.e. congenital cystic dilatation of the common duct, hypotonia of the common duct and inflammatory cholelithiasis.

The indication of supraduodenal choledochenterostomy was also discussed.

References

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和文抄録

総胆管拡張と胆石形成

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総胆管末端部の狭窄を伴なうことなく、著しく拡張せる総胆管内に色素石の存在せる1例の概要を報告し、総胆管内における結石の形成機序について考察を加えた。

また、Longmire 等が記述せる非閉塞性総胆管拡張症の三型即ち先天性総胆管囊腫様拡張症、総胆管ヒポトニー及び炎症性総胆管炎についてのべ、更に十二指腸上部胆管十二指腸吻合術の適応について言及した。