

# Variation in the Size of the Common Bile Duct on Routine Radiography

## A CASE REPORT

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### SUMMARY

Radiological reduction in the size of the common bile duct after a fatty meal stimulus is reported in one patient. Literature concerning choledochal activity is briefly discussed.

*S. Afr. Med. J.*, 48, 2148 (1974).

### CASE REPORT

A 39-year-old woman was admitted to hospital in 1973 with the diagnosis of calculous cholecystitis. There was

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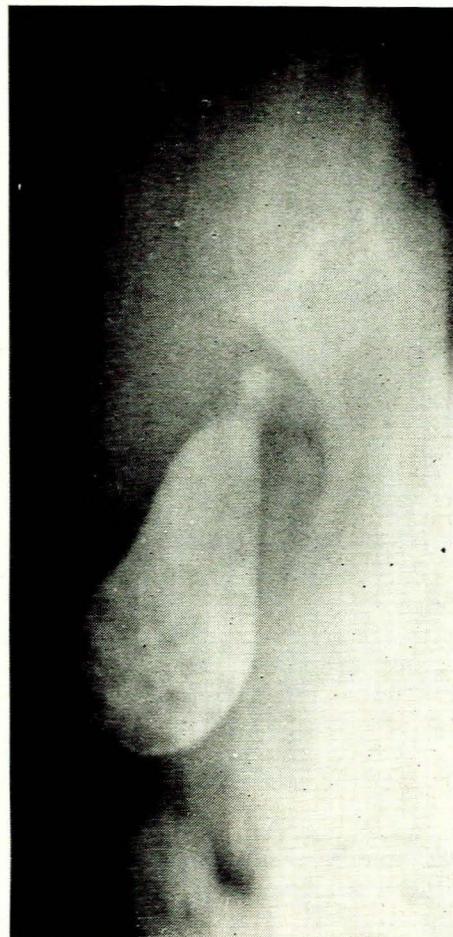
no history of previous gastro-intestinal surgery. No jaundice or cholangitis was noted. The serum bilirubin, alkaline phosphatase and amylase levels were normal. An oral cholecystogram showed the presence of multiple calculi in the gall bladder. An intravenous cholangiogram revealed a dilated hepatic and common bile duct (Fig. 1).

No calculi were noted in the ductal system and dye flowed into the bowel. Repeat roentgenographic examination 40 minutes after a fatty meal stimulus showed reduction in the diameter of the common bile duct (Fig. 2). No pain or abdominal discomfort was experienced by the patient at any time during the examination.

At operation the gall bladder contained multiple stones. No calculi were found in the common bile duct and this was confirmed by operative cholangiography. A Bakes's No. 4 dilator easily passed through the sphincter. No pancreatic pathology was noted. A cholecystectomy was performed and the common bile duct drained with a



**Fig. 1.** Roentgenogram showing the dilated common bile duct and hepatic radicle prior to a fatty meal stimulus. (Magnification constant.)



**Fig. 2.** Roentgenogram showing reduction in size of the common bile duct and hepatic radicle after a fatty meal stimulus. (Magnification constant.)

T-tube catheter. No sphincterotomy was performed. Cholangiomanometry on the 8th postoperative day revealed normal resting and yield pressures.<sup>1,2</sup> A T-tube cholangiogram on the 12th postoperative day showed the presence of a dilated duct, the absence of calculi and free flow of dye into the duodenum. The T-tube was removed the following day. Repeat intravenous cholangiography 12 weeks postoperatively again revealed a reduction in size of the common bile duct after a fatty meal (Figs 3 and 4). Again, no pain was experienced by the patient.

## DISCUSSION

The finding of a dilated common bile duct with normal sphincter pressures in the absence of calculi is unusual, yet well described. The response of the biliary tree to a fatty meal stimulus is mediated through the endocrine action of cholecystokinin.<sup>3</sup> Variation in the tone and diameter of the common bile duct after intravenous

cholecystokinin has been reported.<sup>4,5</sup> However, evidence in favour of common bile duct motility claimed by some authors,<sup>6-8</sup> is discounted by others.<sup>9,10</sup> Histological studies have all emphasised the relative sparsity of muscle in the extraduodenal choledochus.<sup>11</sup>

We do not believe that the reduction in size of the common bile duct after a fatty meal stimulus is evidence of ductal contraction in this case, but rather that it represents drainage of dye from the biliary tree, due to gall bladder contraction with concomitant relaxation of the sphincter of Oddi.

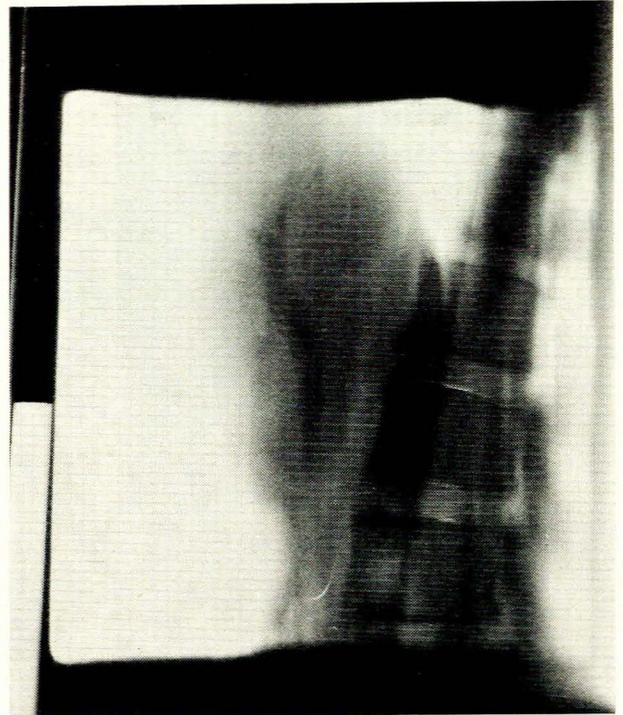
I wish to thank Professors D. J. du Plessis and J. A. Myburgh, and Professor J. H. Louw for the kind loan of his thesis, and Mr P. Faugust for his technical assistance.

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**Fig. 3. Roentgenogram 12 weeks after cholecystectomy, showing the dilated common bile duct. (Magnification constant)**



**Fig. 4. Roentgenogram after a fatty meal stimulus. (Magnification constant)**

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