

The long term consequences of endoscopic sphincterotomy

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Endoscopic sphincterotomy is a well-validated treatment of common bile duct lithiasis. Some of its indications are almost universally accepted, such as residual stones after cholecystectomy, elderly or very high surgical risk patients, severe complications of bile duct stones, and particularly cholangitis with shock or renal failure or severe biliary pancreatitis with signs and symptoms of biliary obstruction. On the other hand, the widespread use of laparoscopy as a technique for cholecystectomy in symptomatic patients with cholelithiasis has induced a regression of the surgical approach to the common bile duct, including in young fit patients, and an increase in indications for sphincterotomy for the same patients, although the long term consequences of sphincterotomy were not perfectly assessed. First described in 1974, the technique of endoscopic sphincterotomy has become popular for over twenty years and several studies allow for an assessment of complications which may develop more than ten years after a sphincterotomy for choledocholithiasis.

The main observed complications on the long term regard the common bile duct on one hand, and the gallbladder on the other hand. Properly ductal complications are the recurrent choledochal stone and the papillary stricture, which may induce cholestasis or bile infection, and "sine materia" cholangitis, which are assumed by some authors to be due to the reflux of non-sterile nutrients from the duodenum to the bile duct across a widely open papilla of Vater. The most common gallbladder complication is acute cholecystitis. It is otherwise legitimate to question the potential carcinogenic role of sphincterotomy, since it creates a permanent duodenal-biliary reflux of digestive juices.

From a physiological point of view, sphincterotomy considerably modifies the function of the sphincter of Oddi, even if one considers divergences in studies as to the completeness of the loss of the sphincteric function. Sphincterotomy also modifies the motility of the gallbladder, as well as lithogenesis. It seems from different studies that the gall bladder motility is generally

Table 1. — Major studies of the long term follow-up after endoscopic sphincterotomy

| | N Patients | % lost at follow-up | Follow-up (years) | Age at ES (years) | Gallbladder in situ |
|-----------------------------------|------------|---------------------|---------------------------------------|-------------------------------------|---------------------|
| Hawes <i>et al.</i> (1990) | 115 | 29% | Median – Mean 8 Range 6-11 | 62 ± 14 23-92 | 0 |
| Prat <i>et al.</i> (1996) | 169 | 8% | Median 10,5 Mean 9,6 Range 8-13 | < 70 | 28% |
| Bergmann <i>et al.</i> (1996) | 100 | 6% | Median 15 Mean – Range 3-18 | < 60 | 0 |
| Sugiyama <i>et al.</i> (1998) | 110 | 6% | Median – Mean 14 Range 10-19 | < 60 | 21% |
| Pereira-Lima <i>et al.</i> (1998) | 217 | 3% | Median – Mean 6,2 Range 7-10 | Mean 68 Median 72 Range 38-97 | 43% |

Table 2. — Biliary symptoms after endoscopic sphincterotomy

| | |
|------------------------------|---------------|
| Hawes <i>et coll.</i> | 13/115 (11%) |
| Prat <i>et coll.</i> | 9/154 (6%) |
| Bergmann <i>et coll.</i> | 22/94 (24%) |
| Sugiyama <i>et coll.</i> | 9/103 (8,5%) |
| Pereira-Lima <i>et coll.</i> | 19/201 (9,5%) |

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Table 3. — Types of documented complications after sphincterotomy

| Documented cases | Papillary stricture | Recurrent bile duct stones | "Sine materia" cholangitis |
|--|---------------------|----------------------------|----------------------------|
| Hawes <i>et al.</i> (12 pts / 13 cases) | 4 | 4 | 5 |
| Prat <i>et al.</i> (9 pts / 10 cases) | 3 | 5 | 2 |
| Bergmann <i>et al.</i> (20 pts / 22 cases) | 9 | 13 | 0 |
| Sugiyama <i>et al.</i> (9 pts / cases) | 0 | 9 | |
| Pereira-Lima <i>et al.</i> (19 pts / cases) | 2 | 16 (+ 1 pancreatitis) | 0 |

increased and its filling reduced, subsequently tending to decrease lithogenesis within the gallbladder.

If we consider only those studies with a large number of patients, a low rate of patients lost at follow-up and a follow-up of more than 6 years after sphincterotomy, 5 studies can be analyzed in the literature (1-5). The overall rate of symptoms that can be attributed to sphincterotomy ranges from 6 to 24%, the rate being close to 10% in 3 of these 5 studies, with follow-ups of 3 to nearly 20 years. The most common complication is recurrent choledocholithiasis, which can be associated to a papillary stricture. "Reflux" or "sine materia" cholangitis has been clearly reported as such in only 2 studies (1,2). Most authors agree to consider late biliary complications after sphincterotomy can be treated safely and efficiently by endoscopic means, and that surgery should be reserved for exceptional cases of stones with several recurrences despite a patent sphincterotomy, or to recurrent reflux cholangitis. In such cases, a hepatico-jejunostomy is the operation of choice. It seems that most complications of sphincterotomy develop during the first 2 years following the procedure and exceptionally after 10 years. Gallbladder complications were analyzed in 3 of the 5 studies (the other 2 included only patients with previous cholecystectomy) and ranged from 4 to 13%.

Table 4. — Gallbladder complications after sphincterotomy

| | |
|------------------------------|-------------|
| Hawes <i>et coll.</i> | — |
| Prat <i>et coll.</i> | 2/47 (4%) |
| Bergmann <i>et coll.</i> | — |
| Sugiyama <i>et coll.</i> | 1/23 (4,5%) |
| Pereira-Lima <i>et coll.</i> | 12/93 (13%) |

Other works reported very dissimilar rates of gallbladder complications after sphincterotomy, up to 20% in some unpublished series.

The question of the carcinogenic risk of sphincterotomy should not be forgotten. A study from Japan reported a 7.4% rate of primary bile duct carcinoma 1 to 20 years after surgical sphincteroplasty (6). However, follow-up studies after endoscopic sphincterotomy do not corroborate this finding, at least during the first 10 years after the procedure. Moreover, a scandinavian study of 992 sphincterotomies showed no increased likelihood of developing a biliary, hepatic or pancreatic carcinoma after sphincterotomy as compared to the general population (7).

Références

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