Sphincter of Oddi Manometry in Various Biliary Diseases: A Report in 20 Thai Patients

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Abstract

This is the first report of sphincter of Oddi manometry study in 20 Thai patients with various biliary diseases. The yield of abnormal SOM in 3 of 17 in our study was low and was comparable to other reports. The successful rate of 85 per cent and complication rate were acceptable. Careful clinical assessment is mandatory before SOM study in order to gain the best benefit and minimize the risk of SOM.

Sphincter of Oddi (SO) was first described in 1887[1] but motor activity of SO has become assessable in recent years. Sphincter of Oddi manometry (SOM) is the most objective way of evaluating motility of the sphincter. Normal motor activity of SO and motility disorder of the SO has been more clearly defined in the last 10-15 years [2-4]. Sphincter of Oddi dysfunction (SOD) had been classified into stenosis type and dyskinesia type and the role of SOM in the selection of patients for treatment was appreciated[5,6]. We wish to report our experience of SOM in Thai patients with various biliary diseases and to the best of our knowledge this is the first report of SOM in Thailand.

MATERIAL AND METHOD

SOM was done in 20 patients from September 1993 to November 1996. The SOM was performed by triple lumen catheter with an outer diameter of 1.7 mm and internal lumen of 0.5 mm with 3 recording ports placed 120° apart at 4 mm intervals with the first port situated at 5 mm from the tip of the catheter (Wilson Cook) in 17 patients and in 3 patients, the modified catheter of Lehman (Wilson Cook) with the middle port serving as the route for guide wire passage which facilitated repeated pull through measurements without losing access into the bile duct or pancreatic duct, was used. The catheter was connected to a low compliance capillary infusion pump containing degassed

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water with pressure transducers connected to a computer interface (Albyn Medical UK.) and calibration of the machine was done according to the manufacturer's instructions. The water infusion rate of 0.5 ml/minute was used throughout the study and the tracings of SOM were displayed and analyzed on the computer screen. Patients were prepared in the usual manner as for routine ERCP. Diazepam intravenously was used to sedate all the patients but one had general anesthesia. SOM was done prior to ERCP without injection of Buscopan® (Hyoscine-N-butyl bromide) or glucagon during the study. The catheter was inserted through the working channel of the endoscope and the pressure recording was set to zero when the tip of the catheter was in the duodenum. After canulation of the duct, the position of the catheter was assessed by aspiration. Bile in the catheter was used to confirm its position in CBD then measurement of pressure was initiated and the first 1-2 minutes of recording was discarded to eliminate artifacts. The catheter was then withdrawn at 2 mm interval at a time and stationed for at least 60 seconds at each site until the all recording ports were in the SO segment which was identified by a step-up of the recorded pressure. Recording of the SO segment was done for 2 - 12 minutes and at least 2 stationed-pull-throughs were done.

Analysis of the SOM tracings was done by selecting the stable recorded pressure portion of the tracings to eliminate the fluctuation of pressure measurement due to catheter movement caused by duodenum contraction or respiratory movement. The mean basal pressure and mean phasic contraction amplitude from all the recording ports were calculated and were classified as abnormal when mean basal pressure was > 40 mmHg or mean phasic contraction pressure was >300 mmHg demonstrated on at least 2 pull-through recordings[2]. The clinical significance of direction and frequency of contraction is uncertain at the present time so no analysis was done on these parameters[5].

The CBD was defined as dilated when the corrected diameter was greater than 10 mm. Pancreatitis was defined as upper abdominal pain together with elevated serum amylase of at least 2 times of normal. Epigastric and/or right upper quadrant pain with or without radiation to the back at the level of interscapular region and duration of not more than 24 hours was defined as biliary type of pain.

RESULTS

There were 9 male and 11 female patients with the mean age ± SD of 56.74 ± 14.13 and a range of 33-82 years. SOM's were successful in 17 of 20 patients (85%). Pressure tracings were obtained in all recording ports in 16 patients and in 1 patient, the middle port stopped to respond during the study but recorded tracings from 2 other ports and were satisfactory for analysis.

Six patients with CBD stones including one with CBD stone and gallbladder (GB) stone had normal SOM studies. In 3 with GB stones, 2 had normal SOM and one had failed SOM.

In 8 patients with recurrent biliary type of pain and intact gallbladder, 3 had dilated CBD, 4 had normal CBD and one with failed SOM and ERCP. Four of this group had normal SOM and 3 had abnormal SOM. Two patients had mean basal pressure of 92.75 and 88.88 mmHg respectively and both had dilated CBD with delayed clearance of contrast medium more than 45 minutes. (Fig. 1.) One patient had mean phasic contraction amplitude pressure of 376.6 mmHg with normal CBD and clearance of contrast medium. In one with the mean basal pressure of 88.88 mmHg, the SOM was done under general anesthesia as requested by the patient. The 2 patients with abnormal basal pressure had been suffering from multiple episodes of abdominal pain that required hospitalization in one and analgesics in another. Both underwent endoscopic sphincterotomy (ES). One of these 2 showed complete relief of symptoms during the 1 year follow-up period and another patient showed partial improvement after ES. The patient with abnormal phasic contraction amplitude pressure was treated with nifedipine but she remained symptomatic.

One patient with obstructive jaundice and dilated CBD, had normal SOM and the cause of the obstruction was undetermined since the patient had been treated elsewhere. One patient with recurrent epigastric pain after laparoscopic cholecystectomy as well as normal US and LFT, the SOM and ERCP failed. One patient with cholangitis post cholecystectomy and ES, the SOM showed no basal pressure but normal phasic contractions were recorded.

Two patients developed pancreatitis and both underwent ES after SOM and ERCP. One had CBD stones and another had SOD with basal pressure > 40 mmHg. However, pancreatitis subsided within a few days in both.

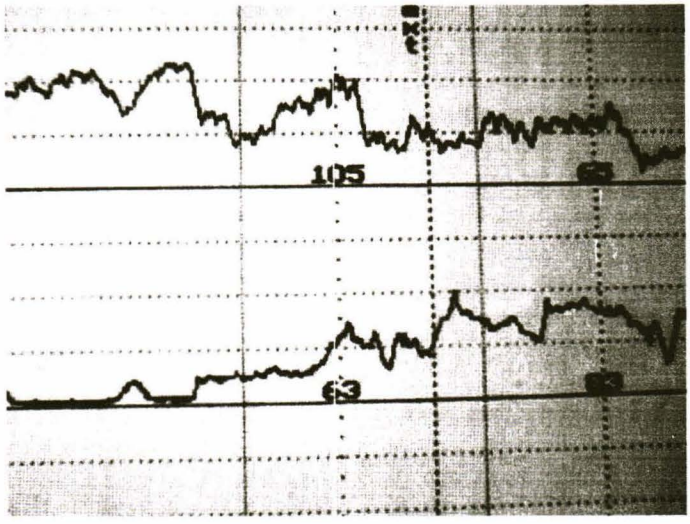

Fig. 1. SOM showed high basal pressure in two recording ports.

DISCUSSION

The SOM's in all patients with CBD stones and gallbladder stones were normal in terms of basal pressure and phasic pressure in this study and this was in agreement with the observation of Toouli et al[7].

In the subset of patients with recurrent epigastric pain of unknown etiology, only 3 had abnormal SOM suggesting that most of the patients in this group were suffering from other conditions. Four of our patients in this group fulfilled the criteria of Hogan's type III SOD[8] and only one (25%) had abnormal SOM. Sherman et al[9] found abnormal SOM in 28 per cent of their patients with type III SOD and other reported a range of 12-19 per cent[10,11]. Three of our patients had the features of Hogan's type II SOD and two of these had abnormal SOMs. The findings were higher than that of 55 per cent in the study of Sherman et al[9]. However, this discrepancy may be due to a small number of patients in our report. Geenen et al[6] reported the effectiveness of ES in cholecystectomized patients with type II SOD with basal pressure > 40 mmHg and other reports also supported this finding[12,13]. Long-term follow-up showed that the efficacy of ES was sustained in this group[14]. The role of ES in patients with SOD and intact gallbladder is less clear. Choudhry et al[15] found a high recurrence of symptoms after long-term follow-up. Our data were too limited to draw any conclusion, however, one patient with severe symptoms was symptom free after ES for at least one year of follow-up and the patient extremely appreciated the treatment, whereas another patient with frequent hospitalization before ES remained symptomatic but the symptoms were not as severe as before the ES and no further hospitalization was needed. Basal pressure was abolished but phasic contraction persisted in one of our patients after ES and this may be explained by incomplete ES.

Our 15 per cent failure rate of SOM was comparable to the range reported in the literature[1]. Two patients (10%) in our series had pancreatitis, however, it is difficult to ascertain whether the pancreatitis was due to SOM or therapeutic procedure after the SOM. Pancreatitis was reported to be more frequent after SOM compared with ERCP[1,16].

SOM was difficult to perform and required expertise as well as sophisticated equipment. The role of SOM in cholecystectomized patients with SOD is promising. The yield of SOM in patients with unexplained biliary type of pain as defined by our criteria in general is low. Careful clinical evaluation to rule out other diagnosis is mandatory before SOM study to minimize the risk of pancreatitis and to maximize the benefit gained from SOM.

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Sphincter of Oddi manometry ในผู้ป่วยโรคระบบทางเดินน้ำดีชนิดต่าง ๆ : รายงานในผู้ป่วยไทย 20 ราย

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รายงานนี้เป็นรายงานการศึกษาการตรวจ sphincter of Oddi manometry (SOM) ในผู้ป่วยไทย 20 รายที่มีปัญหาของโรคระบบทางเดินน้ำดีชนิดต่าง ๆ ซึ่งเป็นรายงานแรกของประเทศไทย ผลการตรวจ SOM พบความผิดปกติ 3 ใน 17 รายซึ่งค่อนข้างต่ำแต่ใกล้เคียงกับตัวเลขที่รายงานจากที่อื่น อัตราการตรวจได้สำเร็จ 85% และโรคแทรกซ้อนของการตรวจอยู่ในเกณฑ์ที่น่าพอใจ ในการประเมินผู้ป่วยที่สงสัยว่ามี sphincter of Oddi ผิดปกติต้องพยายามตรวจค้นอย่างอื่นอย่างรอบคอบก่อนที่จะนำผู้ป่วยมาทำ SOM เพื่อเป็นการทำให้ผลการตรวจ SOM มีประโยชน์สูงสุดและลดโอกาสของการเกิดโรคแทรกซ้อนจาก SOM ให้เหลือน้อยที่สุด

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