Introduction: Only limited data are available regarding the safety of therapeutic ERCP in pregnancy. We report our experience with therapeutic ERCP in pregnant women. Methods: Medical records of 18 pregnant women (first trimester 4, second 6, third 8) who underwent ERCP between July 1994 and December 2004 were reviewed. Patients and their families were contacted to assess the well being of mother and baby. Results: All the women underwent therapeutic ERCP and biliary sphincterotomy for common bile duct (CBD) stones. In 4 patients, 10-Fr CBD stents were inserted; three of these four cases required mechanical lithotripsy after delivery. Median procedure time was 17 min and median fluoroscopy time was 8 seconds. One patient each developed mild post ERCP pancreatitis and post sphincterotomy bleed. One woman had a preterm delivery. At follow up after a median of 6 years, all the babies were healthy. Conclusion: Therapeutic ERCP can be performed safely in all the trimesters of pregnancy provided appropriate precautions are taken. [Indian J Gastroenterol 2005;24:161-163]

Safety of therapeutic ERCP in pregnancy – an Indian experience

Rajesh Gupta, Manu Tandan, Sandeep Lakhtakia, D Santosh, G V Rao, D N Reddy

Asian Institute of Gastroenterology, 6-3-661, Somajiguda, Hyderabad 500 082

Cholelithiasis during pregnancy is a rare but serious problem. It may be associated with cholangitis and gallstone pancreatitis with potential life-threatening complications for both mother and fetus. The frequency of cholelithiasis requiring therapeutic intervention is estimated to be around 1 in 1200 deliveries.1

Only limited data are available on the safety of ERCP during pregnancy and its effect on the fetus. Most published experience is from small case series and case reports.2-11 Recent studies have estimated fetal radiation dose during ERCP,9,10 however, no long-term follow-up data are available on babies born after ERCP.

Methods
Medical records of all pregnant women who underwent therapeutic ERCP between July 1994 and December 2004 in our center were reviewed retrospectively.

ERCP procedures had been performed under deep sedation in the supine position by experienced endoscopists. All patients had undergone abdominal ultrasonography (US) and obstetric evaluation. The lower abdomen and pelvis were lead-shielded to reduce radiation to the fetus. In the last five years (1999 onwards), abdominal US has been done at the patient’s bedside immediately prior to the procedure to localize the common bile duct (CBD). During the ERCP procedure, US was repeated to check the position of the cannula and guidewire in the common hepatic duct and proximal CBD; the distal CBD could not be seen due to air in the duodenum. Selective biliary cannulation was performed using a sphincterotome and confirmed by bile aspiration or ultrasound guidance. Fluoroscopy was used for as short a time as possible and spot radiographs were avoided.

Data about procedure time, fluoroscopy time, outcome of procedure, and procedure-related complications were retrieved from medical records. Patients and their families were contacted to obtain information on the clinical outcome for mother and child after the procedure. An attempt was made to follow up all patients who had undergone the procedure.

Results
Eighteen pregnant women (first trimester 4, second trimester 6, third trimester 8) had undergone therapeutic ERCP during the period; indication for ERCP in all the patients was suspicion of choledocholithiasis on clinical, biochemical or imaging data. Four patients had symptomatic choledocholithiasis (cholangitis 3, gallstone pancreatitis 1); these four underwent emergency therapeutic ERCP. In the remaining 14 patients, the procedure was done on an elective basis. In patients in the third trimester who were beyond 32 weeks of pregnancy, ERCP was performed only if it could not be deferred due to symptomatic disease (2 patients, both with cholangitis).

All patients underwent ERCP and endoscopic biliary sphincterotomy. Location of the cannula in the bile duct was confirmed using ultrasound guid-
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In our series, median procedure time was 17 min (range 5-21) and median fluoroscopy time was 8 seconds (3-18). We used ultrasound guidance and bile aspiration to confirm biliary cannulation to reduce fluoroscopy exposure. No other series has reported the use of ultrasound guidance. All procedures were performed by experienced therapeutic endoscopists. With the patient under deep sedation, they could complete the procedure quickly and safely, which in turn reduced the radiation exposure of the fetus and risk to the mother and fetus. Further, in our patients, ERCP was performed safely in all three trimesters. The other published series have also reported their experience in all three trimesters.

May and Shaffer\(^1\) proposed biliary sphincterotomy in high-risk patients with gallstone pancreatitis regardless of whether choledocholithiasis was documented or not at ERCP. We adopted the same approach. The complications of biliary sphincterotomy were similar to those in the non-pregnant state. In our series, 2 of 18 patients had minor complications (post sphincterotomy bleed and mild pancreatitis). Similar experiences have been reported in other large series.\(^4,9,10\)

One patient had preterm delivery; all others had normal delivery. Jamidar et al\(^4\) reported two elective abortions, one unrelated spontaneous abortion and one unrelated infant death in their series of 23 patients. Long-term follow up of babies born after ERCP revealed no abnormality in any child in our study.

In conclusion, ERCP can be performed safely during pregnancy. However this procedure should be attempted only by endoscopists with sufficient expertise while taking all precautions to reduce fetal radiation exposure.

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Correspondence to: Dr Reddy, Director. Fax: (40) 2332 4255
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Image
Cameron lesion and its laparoscopic management

Fig: Endoscopic appearance of Cameron lesion
A 60-year-old lady presented with anemia and severe epigastric pain. Endoscopy showed linear ulceration at the level of the diaphragm – Cameron lesion with large hiatal hernia (Fig). Despite treatment with omeprazole and hematocrit the lesion reappeared with the same manifestations. Laparoscopic fundoplication was done. Five months later, she is asymptomatic.

Cameron lesions are linear gastric ulcers or erosions positioned on the crests of mucosal folds at the diaphragmatic impression, in patients with large hiatus hernia. The possible cause is mechanical trauma or ischemia of the folds as they rub together during diaphragmatic movement with breathing, belching and vomiting. Peptic injury is another possible cause because healing with antisecretory therapy has been reported.

The clinical presentation is chronic GI bleeding and iron-deficiency anemia.1 Our patient also had severe abdominal pain, an uncommon presentation. Cameron lesions can also present as acute upper GI bleeding in about 33% of cases.2 Treatment is empirical and includes antisecretory therapy and iron. Of patients who were treated medically, about one third had a recurrence of the lesion and 17% developed complications. Surgical treatment is mandatory for refractory cases like ours, who do not respond to medical therapy.2

Moschos J, Pilipolidis I, Kadis S,* Antonopoulos Z, Paikos D, Tzilves D, Katsos I, Tarpagos A Gastroenterology Department, Theagenio Hospital, Thessaloniki, Greece; and *Gastroenterology Department, Queen Elizabeth Hospital, Gateshead, UK

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