# Left-Sided Gastroschisis : Two Case Reports in Ratchaburi Hospital†

SOMCHAI THEPCHAROENNIRUND, M.D., F.R.C.S.T.*

**Abstract**

Left-sided gastroschisis has rarely been reported. From August 1987 to April 1998, 73 cases of gastroschisis were treated at the Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital. The abdominal wall defect of only 2 cases occurred on the left side of the umbilicus. The 2 cases of left-sided gastroschisis were girls and were successfully treated by primary fascial closure. After 7 and 1 year follow-up the patients remain asymptomatic.

**Key word** : Left-Sided Gastroschisis

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Gastroschisis is characterized by an extra-umbilical abdominal wall defect through which portions of the midgut eviscerate and there is no sac covering. A number of different theories have been proposed to explain the embryogenesis of gastroschisis. The most widely accepted proposal is that the anomaly results from a rupture at the base of the umbilical cord in an area weakened by the involution of the right umbilical vein[1,2]. Loops of intestine are free to herniate into the amniotic cavity, an event that appears to occur relatively late in fetal development. In most reported cases of gastroschisis, the abdominal wall defect occurred on the right of the umbilicus. Only six cases of left-sided gastroschisis have been reported[2-5]. The author reports two patients with left-sided gastroschisis from a total group of seventy-three cases with gastroschisis that were successfully treated in the Pediatric Surgical Unit, Ratchaburi Hospital between August 1987 and April 1998.

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## CASES REPORT

### Case 1.

Baby P. was a 1700-g girl product of a 37-week gestation. She was born by normal spontaneous vaginal delivery at Ratchaburi Hospital on August 9, 1991. Her mother was 20 years old and primigravidalum. Gastroschisis was noted at birth. The infant was transported immediately to the neonatal intensive care unit.

Physical examination was remarkable for left-sided gastroschisis. The dimensions of the abdominal wall defect were approximately 3x3 cm and very near the left margin of the umbilical cord, through which the bowel protruded extending from the jejunum to the transverse colon. The bowel was rather matted and edematous in appearance (Fig. 1). The infant was resuscitated by nasogastric intubation, intravenous fluid, rectal irrigation with normal warm saline solution to remove meconium, appropiate antibiotics (Ampicillin 100 mg/d, Gentamicin 5 mg/d, Metronidazole 20 mg/d) were given and she was taken to the operating room.

At the operation, the abdominal wall defect was extended up and down about 2 cm. No situs inversus was found and the umbilical vein including the umbilical arteries were normal. After dividing the umbilical vessels and urachus, the abdominal wall was slowly stretched in all four quadrants. Intestinal contents were gently evacuated up to the stomach and down to the rectum. The eviscerated bowels were reduced into the abdominal cavity and the abdomen was closed by primary fascial closure.

Postoperatively the patient continued on mechanical ventilation for 3 days, intravenous antibiotics were given for 10 days, as was total parenteral nutrition. Enteral feeding began on the 14$^{th}$ postoperative day and she was discharged on the 33$^{rd}$ day of life (September 10, 1991. Fig. 2). After seven years follow-up at the outpatient department, the patient remains asymptomatic.

### Case 2.

Baby M. was a 2450-g girl product of a 40-week gestation. She was born by normal spontaneous vaginal delivery at Ratchaburi Hospital on June 26, 1997. Her mother was 23 years old and primigravidalum. Gastroschisis was noted at birth and the infant was transported immediately to the neonatal intensive care unit.

Physical examination was remarkable for left-sided gastroschisis but otherwise was normal

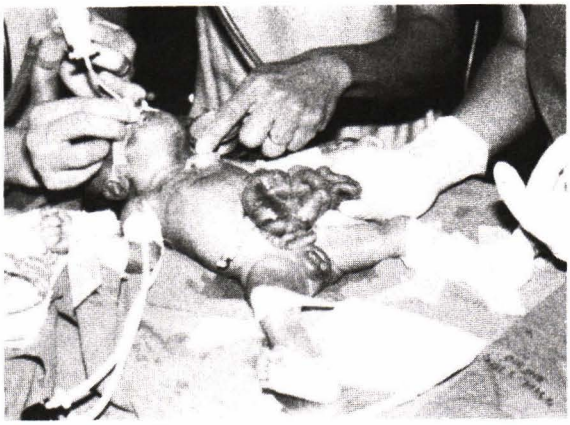

**Fig. 1. Matted small bowel and edematous colon herniated from abdominal wall defect at the left-side of the umbilical cord in the first case.**

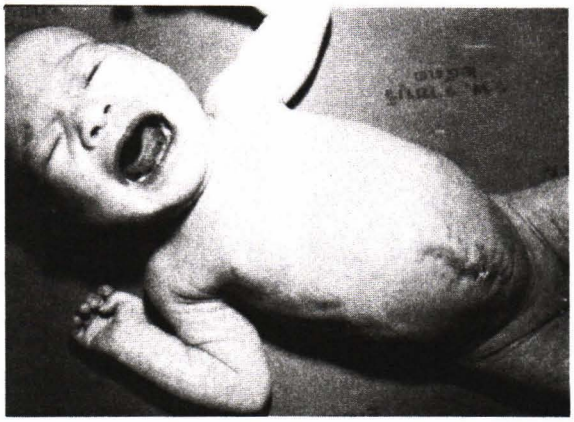

**Fig. 2. Baby P. in case 1. at the age of 33 days.**

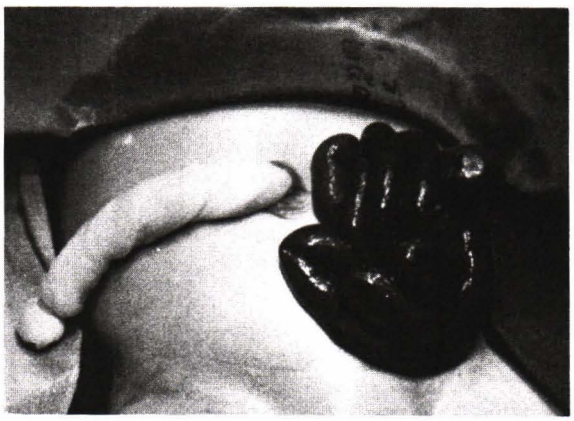

**Fig. 3. Eviscerated bowel to the left side of the umbilical insertion in the second case.**

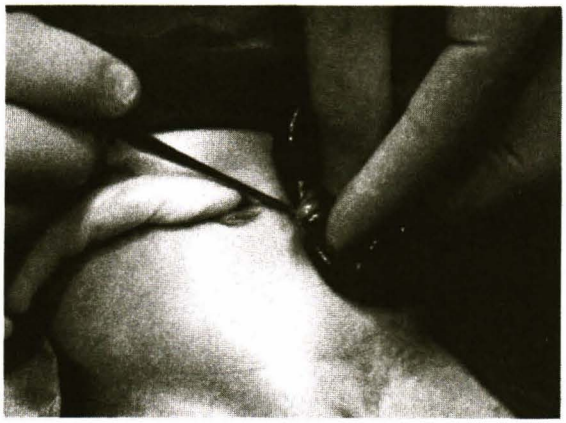

**Fig. 4. Shows the abdominal wall defect at the left-side and 3 cm away from the umbilical cord.**

**Fig. 7. In the majority of gastroschisis, the abdominal wall defect occurs at the right side of the umbilicus.**

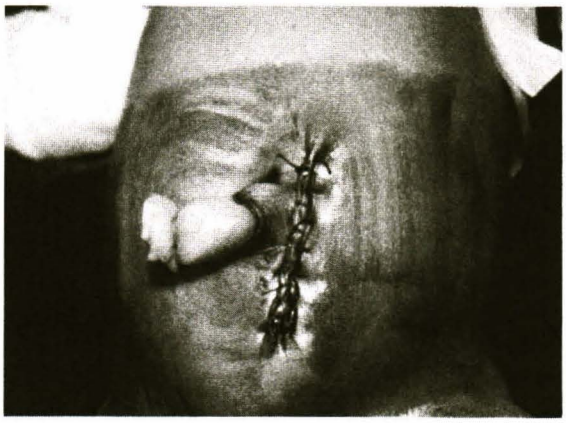

**Fig. 5. After complete primary fascial closure.**

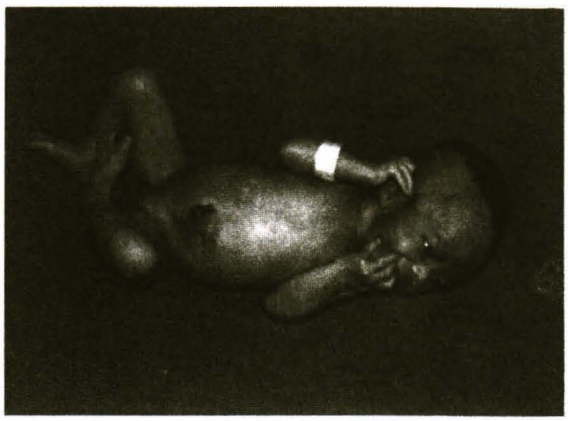

**Fig. 6. Baby M. in case 2. at the age of 14 days.**

(Fig. 3). The dimensions of the abdominal wall defect were approximately 2x3 cm and about 3 cm away from the left margin of the umbilical cord, through which all of the near small intestine protruded (Fig. 4). The bowel was slightly edematous but not matted in appearance. The infant was resuscitated by nasogastric intubation, intravenous fluid, rectal irrigation with normal warm saline solution to remove meconium, appropriate antibiotics (Ampicillin 100 mg/d, Gentamicin 5 mg/d, Metronidazole 20 mg/d) were given and she was taken to the operating room.

At the operation, the abdominal wall defect was extended up and down about 2 cm. No situs inversus was found and the umbilical cord including the umbilical vessels were normal. After excision the rim of the defect and decompression of all of the small bowel, primary fascial closure was done easily (Fig. 5).

Postoperatively, the patient required mechanical ventilation for 3 days, intravenous antibiotics were continued for 10 days and total parenteral nutrition was given. Enteral feeding began on the $8^{th}$ postoperative day, and she was discharged on the $14^{th}$ day of life (July 9, 1997. Fig. 6). After one year of follow-up at the outpatient department the patient remains asymptomatic.

## DISCUSSION

Gastroschisis must have most, if not all, of the following features : (1) the umbilical cord is to the left of the hernia defect and seperated from

it by a bridge of skin (Fig. 7) ; (2) there is no sac ; (3) the small intestine is herniated, with extremely rare herniation of a portion of the liver ; (4) the eviscerated loops of the bowel are thickened, adherent, and covered by a confluent gelatinous layer ; (5) the herniated bowel is more frequently infarcted or associated with atresia than in omphalocele ; (6) other major congenital malformations are infrequent ; (7) the abdominal cavity is more adequately developed than in cases of large omphalocele[6-8, 9-14]. The pathogenesis of gastroschisis is not completely understood. A prevailing hypothesis for distinct embryogenesis for gastroschisis implicates an early intrauterine vascular event, possibly involving malclosure of the right umbilical vein or the right omphalomesenteric artery[2,15]. Others propose that gastroschisis is the result of an antenatal perinatal tear or rupture through the membrane of a "hernia of the umbilical cord", with evisceration of abdominal contents through this defect[1,15]. Perhaps the regression of the left umbilical vein may explain the pathogenesis of left-sided gastroschisis[4].

From review of the world literature, only six cases of left-sided gastroschisis have been reported[2-5]. The author presents two case reports of left-sided gastroschisis in Thailand. From the physical examination and operative findings, the abdominal wall defect probably occurred during the antenatal period in the first case and the perinatal period in the second case of this repoert. From the literature and other pediatric surgeons reports, the concept is that left-sided gastroschisis is rare but the principles of management remain the same as for the more common defect[3-5].

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# Gastroschisis ที่เกิดด้านซ้าย : รายงานผู้ป่วย 2 ราย ในโรงพยาบาลราชบุรี†

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Gastroschisis ที่เกิดด้านซ้ายมีรายงานน้อยมาก ๆ ตั้งแต่เดือนสิงหาคม 2530 ถึงเดือนเมษายน 2541 แผนกศัลยกรรมเด็ก กลุ่มงานศัลยกรรม โรงพยาบาลราชบุรี รับรักษาผู้ป่วย Gastroschisis ไว้รวม 73 ราย มีผู้ป่วย 2 ราย ที่มีความพิการของผนังหน้าท้องอยู่ด้านซ้ายของสะดือ ผู้ป่วย Gastroschisis ทั้ง 2 รายเป็นเด็กเพศหญิง ได้รับการรักษาโดยวิธีเย็บปิดผนังหน้าท้องทุกชั้นได้เป็นผลสำเร็จ จากการติดตามผล 7 และ 1 ปีตามลำดับ ไม่พบผลแทรกซ้อนเกิดขึ้น

**คำสำคัญ** : ความพิการของผนังหน้าท้องที่เกิดด้านซ้าย

**สมชาย เทพเจริญนิรันดร์**
**จดหมายเหตุทางแพทย์ ฯ 2543; 83: 804–808**

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