

The outcome of gastroschisis affected by timing of child delivery

*Somboon Roekwibunsi**

*Dusit Viravaidhya**

*Soottiporn Chittmittrapap**

*Bidhya Chandrakamol**

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Gastroschisis is congenital defects of the abdominal wall that require prompt surgical management at the time of delivery. Since the extent of the bowel damage is related to the period of exposure to the amniotic fluid and can be predicted base on the prenatal ultrasound finding. The options of early delivery to those fetus at high risk can be offered to acheive less or total lack of edema and bowel peel then the post operative may be improved and hospital stay be shorter in the prenatal diagnosis group compare to traditionally treated cases.

To evaluate the timing of delivery and the influence on the outcome, we reviewed 20 infants with gastroschisis without antinatal diagnosis during 4.5 years period (1992-1995) by devided into mature and premature groups. Overall survival was 80%, 1 closure of the defect was successfully acheived in 11 cases. The prognosis for the infants with gastroschisis affected with the timing of delivery is discussed including details of the postoperative assisted ventilation, total parenteral nutrition and the trend of early discharge home.

Index: Gastroschisis, Abdominal wall defect

Reprint request : Roekwibunsi S. Department of Surgery,
King Chulalongkorn Memorial Hospital,
Patumwan, Bangkok 10330, Thailand

ผลการรักษาทารกโรค Gastroschisis เมื่อคำนึงถึงอายุครรภ์ขณะคลอด

สมบุญ ฤกษ์วิบูลย์ศรี *

ดุสิต วีระไวทยะ *

สุทธิพร จิตต์มิตรภาพ *

พิทยา จันทรมล *

Gastroschisis เป็นภาวะที่จำเป็นต้องอาศัยการผ่าตัดแก้ไขในทันทีตั้งแต่แรกคลอด ในปัจจุบันนี้การวินิจฉัยตั้งแต่ยังอยู่ในครรภ์มาเป็นสิ่งที่กระทำได้ไม่ยากนักเนื่องจากการใช้ ultrasound ตรวจสอบสภาพครรภ์ในช่วงการฝากครรภ์ อย่างแพร่หลาย หากตรวจพบก็สามารถเตรียมนำมารดามาคลอดยังศูนย์การแพทย์ที่พร้อมที่จะดูแลมารดาและเด็กในช่วงการคลอด

ภาวะที่ลำไส้ของเด็กในครรภ์มารดาซึ่งออกจากหน้าท้องและสัมผัสกับน้ำคร่ำคลอดเวลาและมีสภาพหนาววมมี fibrin ครอบคลุมนั้นมีผลเสียต่อการดำเนินโรคหลังการผ่าตัด เป็นที่น่าสนใจว่า หากให้มารดาคลอดบุตรในช่วงเวลาที่เหมาะสมที่บุตรแข็งแรงและลำไส้ยังมีสภาพดีเนื่องจากยังไม่ถูกสัมผัสกับน้ำคร่ำนานเกินไป ผลการผ่าตัดอาจจะดีขึ้น มีโรคแทรกซ้อนน้อยลงและผู้ป่วยเด็กอาจจะกลับบ้านได้เร็ว

ผู้รายงานได้รวบรวมผลการรักษาทารกแรกคลอดโรค gastroschisis 17 รายที่ได้รับการรักษาที่โรงพยาบาลจุฬาลงกรณ์ ในช่วงปี 1992-1995 เพื่อศึกษาความสัมพันธ์ของอายุครรภ์ขณะคลอดและผลการรักษาผู้ป่วย ผลการศึกษาพบว่าไม่มีความสัมพันธ์ระหว่างอายุครรภ์ขณะคลอดและผลการรักษาทางคลินิก ผู้ป่วยคลอดก่อนกำหนดจะมีผลการรักษาที่เร็วกว่าผู้ป่วยที่ผู้ป่วยคลอดตามกำหนด

Gastroschisis are congenital defects of the abdominal wall that require prompt surgical management at the time of child delivery. The use of ultrasonography has become a very common procedure for pregnant woman in Thailand. Antenatal diagnosis of abdominal wall defects may allow parental counseling and in-utero transfer to a tertiary center where the neonatal outcome should be more favorable.^{2,5}

The extent of bowel damage is related to the period of exposure to the amniotic fluid and can be predicted based on the ultrasound findings. The option of early delivery to those fetus at high risk can be offered so as to achieve decreased or a total lack of edema and bowel peel. The post operative care may therefore be improved and the hospital stay be shortened for the prenatal diagnosis group as compared to more traditionally treated cases.

To evaluate the timing of delivery and its influence on the outcome, we reviewed 17 infants with gastroschisis treated in a single institution since 1992 in the effort to determine the appropriate timing for the delivery in these fetus.

Materials & Methods

Between 1992-1995, 17 patients without prenatal diagnosis of Gastroschisis treated at the Division of Pediatric Surgery Chulalongkorn Hospital

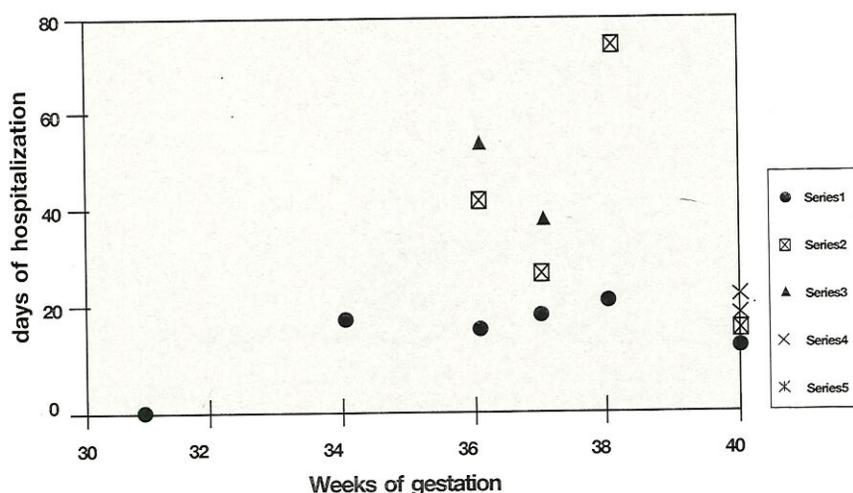
were reviewed. Particular attention was given to the gestational period and the course of hospitalization. The outcome for this group was compared by using the Coefficient of Correlation T-test (Student t) $p > 0.05$

Results

Among the 17 patients without a prenatal diagnosis of Gastroschisis 13 infants (76%) were delivered vaginally (8 NL, 4 F/E, 1 total breech extraction), emergencies and 4 by Cesarean section. These last four were considered due to thick stained AF, prolonged first stage, prolapse cord and gastroschisis. Two were dead in utero and one died soon after birth. No autopsy was performed. Marked Meconium staining occurred in 6, none of whom had clear evidence of subglottic aspiration of meconium. The average birth weight was 2339.5 gm.

The primary closure was performed in nine of the newborn, and the five remaining patients were operated successfully by staged procedure. The average time for the secondary abdominal wall closure was 6.4 days. The average post-operative ventilatory support time was 5.9 days. Ten patients required temporary respirators. Mortality occurred in five infants. The causes of death were NEC with septicemia, sepsis, two fetal dead in utero and one stillbirth.

Table 1



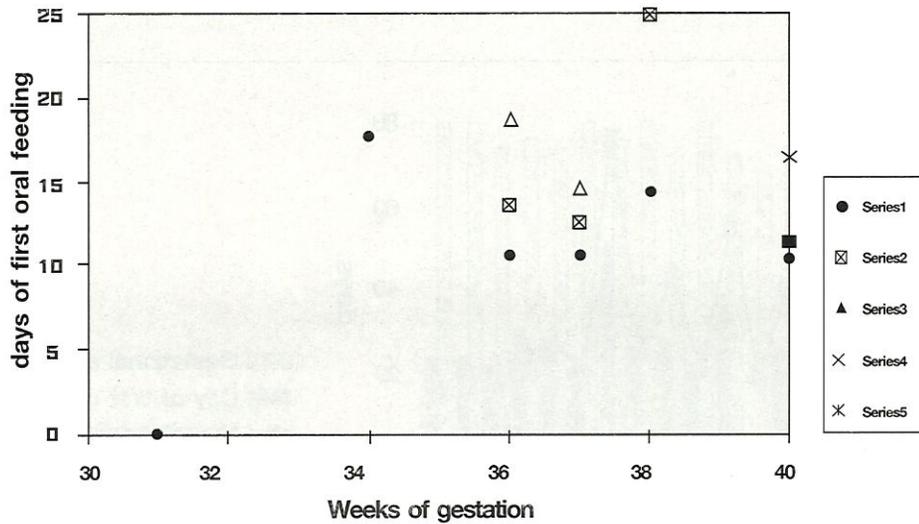


Table 2

The average duration of post-operative TPN was 14.4 days. This was significantly longer in the premature group compared to the mature group (table 4). The average duration of hospital stay was 29.9 days. This was also significantly longer in the premature group compared to the mature group (table 4). There was no correlation between early post-operative feeding or length of hospital stay (tables 1,2).

Discussion

Gastroschisis is a congenital defect of the abdominal wall that can be diagnosed by ultrasonography before 20 weeks of gestation.⁽⁷⁾ The use of ultrasonography has become a routine procedure for pregnant woman in Thailand. The prenatal diagnosis of an abdominal wall defect in the fetus may lead to in-utero maternal transport⁽⁸⁾ to a surgical center where surgical facilities are available.^{2,3,13} The characteristic fibrous coating of the protruding bowel loops, associated with hypoperistalsis, is considered to be late gestational event. These events consist of ischemic changes of the bowel wall secondary to compression of the bowel loops and mesentery in the small abdominal wall defect. The

time of exposure to amniotic fluid may correlate with the presence of mural thickening and⁽¹²⁾ small bowel damage that can be detected prenatally by ultrasonography. With a lack of edema and bowel peel, the average duration postoperative TPN and hospital stay maybe shortened. Elective cesarean section following prenatal diagnosis of Gastroschisis has been advocated to decrease morbidity mortality.⁽¹⁾ Sonographic examination of severe intestinal damage may be of value in the decision for delivery intervention for those with severe bowel dilatation and mural thickening.⁽⁴⁾ However, from the data analysed in this study, there were no evidence showing any correlation between the known time of exposure to amniotic fluid (gestational age at birth) with the clinical outcome of the patients with gastroschisis. There fore, early delivery of infants with prenatally diagnosed gastrochisis should not be performed only to limit exposure to amniotic fluid.^(6,10) Premature delivery may lead to a worse outcome for the infants. We believe that more prospective studies are required for fetus with prenatal diagnosis of abdominal wall defects to determine the outcome and confirm these findings.

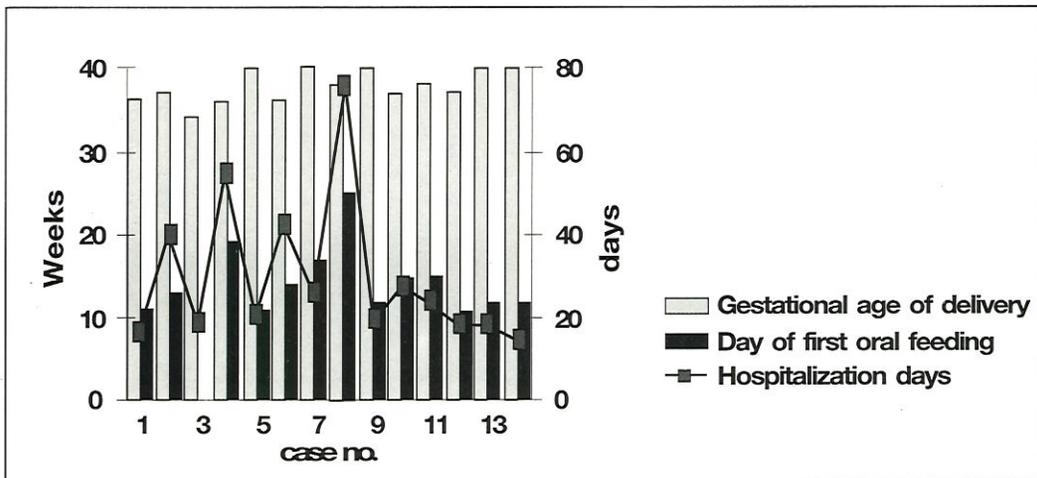


Table 3

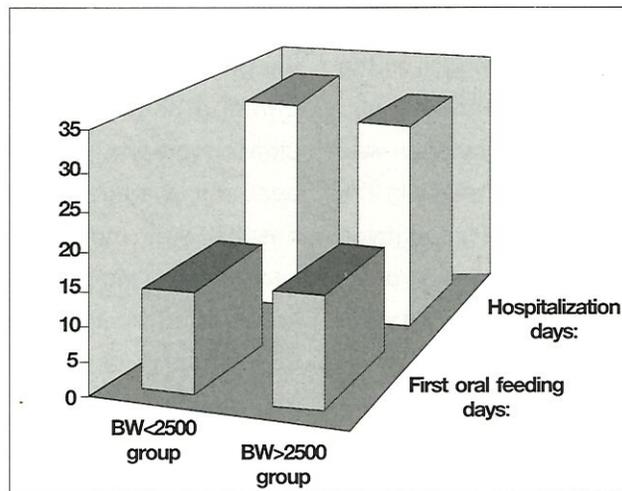


Table 4

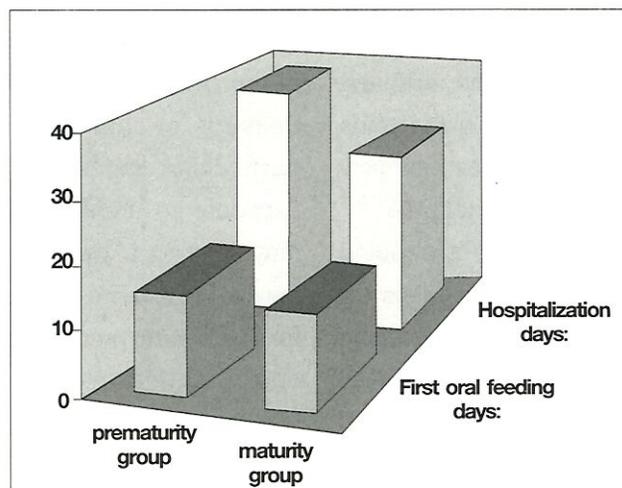


Table 5

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