HENDREN PROJECT Webinar

GASTROSCHISIS CHALLENGES NORTH & SOUTH

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The Hendren Project
Your Global Networked Community for Pediatric Surgery & Urology

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Gastroschisis – Webinar

This presentation should target three questions:

1. **What were our baseline gastroschisis outcomes?**
2. **What did we introduce to improve the outcomes?**
3. **What were our outcomes after we introduced the improvement measures.**

J Pediatr Surg. 2019 Jul;54(7):1481-1486. doi: 10.1016/j.jpedsurg.2019.02.020. Epub 2019 Feb 24.

A 25-year study of gastroschisis outcomes in a middle-income country.

Miranda ME[1], Emil S[2], de Mattos Paixão R[3], Piçarro C[3], Cruzeiro PCF[3], Campos BA[3], Pontes AK[4], Tatsuo ES[3].

⊕ Author information

Abstract

BACKGROUND: Survival of newborns with gastroschisis is significantly higher in high-income versus low and middle-income countries. We reviewed treatment and outcomes of gastroschisis in a middle-income country setting with increasing protocolized management.

METHODS: All newborns with gastroschisis treated during the period 1989-2013 at a single Brazilian academic surgical service were studied retrospectively. Protocolized diagnosis, delivery, nutrition, medical interventions, and surgical interventions were introduced in 2002. Outcomes before and after protocol introduction were studied using univariate and multivariate analysis.

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1. **What were our baseline gastroschisis outcomes?**

Prior to 2002:

a) no specific plan for care existed;
b) Prenatal diagnosis was uncommon;
c) Most neonates were outborn and transferred;
d) Children were treated in Adult Intensive Care Unit;
e) Staged repair was the main technique;
f) Prior 1995, we had complications as intestinal fistulae secondary to inadequate prosthesis as silo;
g) Mortality was high (one of every three babies with gastroschisis died).

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1. **What were our baseline gastroschisis outcomes?**

Prior to 2002:

Babies with gastroschisis were often admitted to the Hospital in a delayed manner, sometimes up to 3 days after birth, with a clinical picture of dehydration, hypothermia or sepsis.

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2. What did we introduce to improve the outcomes?

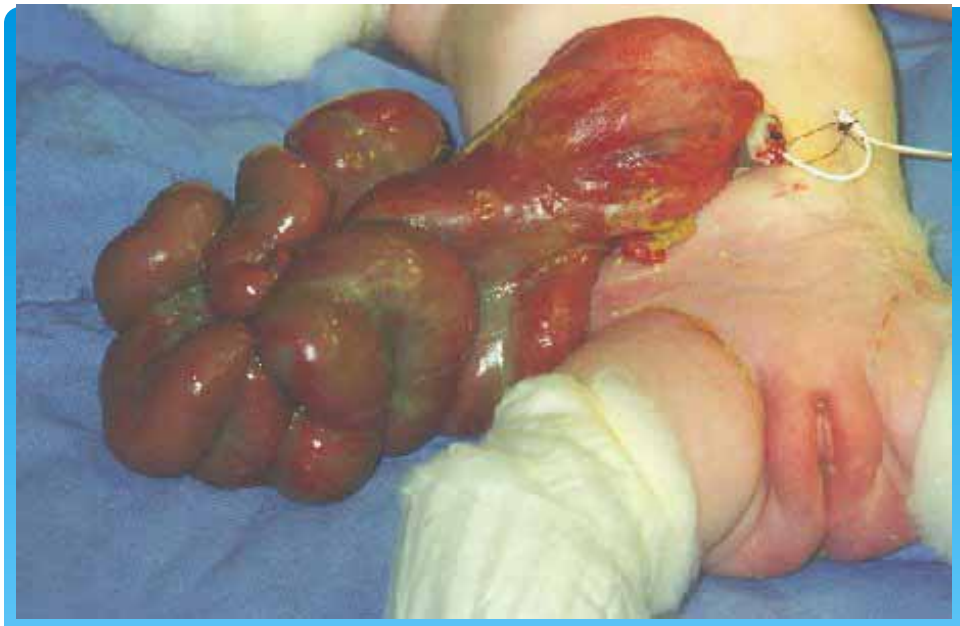
Pediatr Surg Int (1999) 15: 442–444

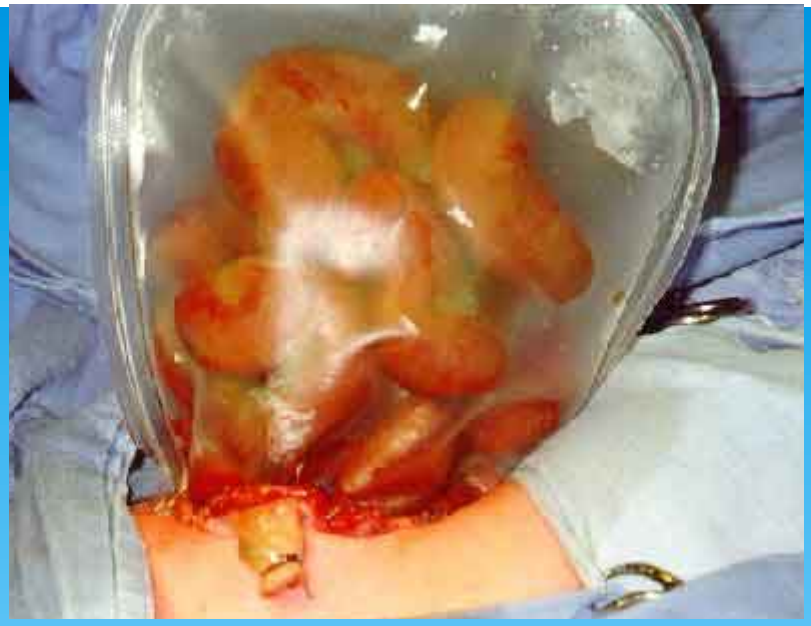
TECHNICAL INNOVATION

M. E. Miranda · E. S. Tatsuo · J. T. Guimarães
R. M. Paixão · J. C. B. D. Lanna

Use of a plastic hemoderivative bag in the treatment of gastroschisis

A customized silo was developed by our group, for complex gastroschisis or simple gastroschisis with severe bowel matting.





M. E. Miranda, et al.

Use of a plastic hemoderivative bag in the treatment of gastroschisis.

Pediatric Surgery International (1999) 15: 442 – 444.

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2. What did we introduce to improve the outcomes?

Eight targeted interventions were enacted in 2002;

Multidisciplinary effort (pediatric surgeons, neonatologists, obstetricians, and nurses).

Literature review to delineate best practices in the care;

Two events in the University Hospital (HC-UFMG) – funding by Federal Government

Expansion of the Fetal Medicine Center;

Inauguration of the Pediatric Intensive Care Unit

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2. What did we introduce to improve the outcomes?

The elements of the care package were:

a) Prenatal diagnosis;
b) Inborn delivery;
c) Monitored hydration to avoid electrolyte disturbances;
d) Placement of PICC line for **TPN** (replaced cut-downs);
e) Early closure;
f) Primary repair, when possible;
g) Measurement of bladder pressure (to avoid abdominal compartment syndrome);
h) Early initiation of enteral feedings.

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3. What were our outcomes after we introduced the improvement measures.

RESULTS:

156 newborns were treated for gastroschisis:
35 (22.4%) and 121 (77.6%) before and after 2002, respectively.

The number of patients treated increased progressively:
35 from 1989 to 2001 (**2.69** cases/year),
50 from 2002 to 2007 (8.33 cases/year),
71 from 2008 to 2013 (**11.83** cases/year).

Mortality decreased from 34.3% before 2002 to 24.8% (p =0.27).
Median Hospital Stay for survivors decreased from 52 to 37 days (p= 0.057).

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3. What were our outcomes after we introduced the improvement measures.

Patients treated after 2002 had:

a) Higher rates of prenatal diagnosis (90.9% vs. 60.0%, $p < 0.001$);
b) Delivery at a tertiary center (90.9% vs. 62.9%, $p < 0.001$);
c) Early closure (65.3% vs. 33.3%, $p = 0.001$);
d) Primary repair (55.4% vs. 31.4%, $p = 0.013$);
e) Monitoring of bladder pressure (62.0% vs. 2.9%, $p = 0.001$);
f) PICC placement (71.1% vs. 25.7%, $p < 0.001$);
g) Early initiation of enteral feeding (54.5% vs. 20.0%, $p < 0.001$);
h) Shorter duration of MV (median 7 vs. 12 days, p=0,011)
i) Lower rates of electrolyte disturbances (53.7% vs. 85.7%, $p = 0.001$).

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3. What were our outcomes after we introduced the improvement measures.

CONCLUSIONS

Further efforts: avoiding septic complications, are required to achieve the excellent outcomes associated with this anomaly in high resource settings

We are since 2015 conducting a prospective study to evaluate contemporary gastroschisis outcomes in Brazilian institutions.

CONCLUSIONS: Gastroschisis outcomes in a middle-income country can be gradually improved through targeted interventions and management protocols.

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THANK YOU !