Gastroschisis Challenges North & South

Sherif Emil, MD,CM, FACS,FRCSC,FAAP
Harvey E Beardmore Division of Pediatric Surgery
The Montreal Children's Hospital
McGill University Health Centre

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Webinar Objective

To explore current challenges in the care of gastroschisis patients in all environments, with a focus on low and middle income countries.

To present interventions that may improve outcomes of gastroschisis in diverse health care environments.

Gastroschisis

Kigali, Rwanda December 2013

The Gastroschisis Gulf

The difference in neonatal surgical care and outcomes between sub-Saharan Africa and the developed world cannot be described as a gap. It is a gulf. No condition depicts that gulf better than gastroschisis.

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Canada and the United States

Contemporary Outcomes

The Canadian Pediatric Surgery Network
Le Réseau Canadien de Chirurgie Pédiatrique

H·CUP
HEALTHCARE COST AND UTILIZATION PROJECT

Journal of Pediatric Surgery 51 (2016) 891–895

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Gastroschisis outcomes in North America: a comparison of Canada and the United States

Fouad Youssef, Li Hsia Alicia Cheong, Sherif Emil *
The Canadian Pediatric Surgery Network (CAPSNet)

Division of Pediatric General and Thoracic Surgery, The Montreal Children's Hospital of the McGill University Health Centre, Montreal, Quebec, Canada

Overall Survival (%)	97.1	95.9
Simple Gastroschisis (%)	98.6	96.6
Complex Gastroschisis (%)	89.2	91.7

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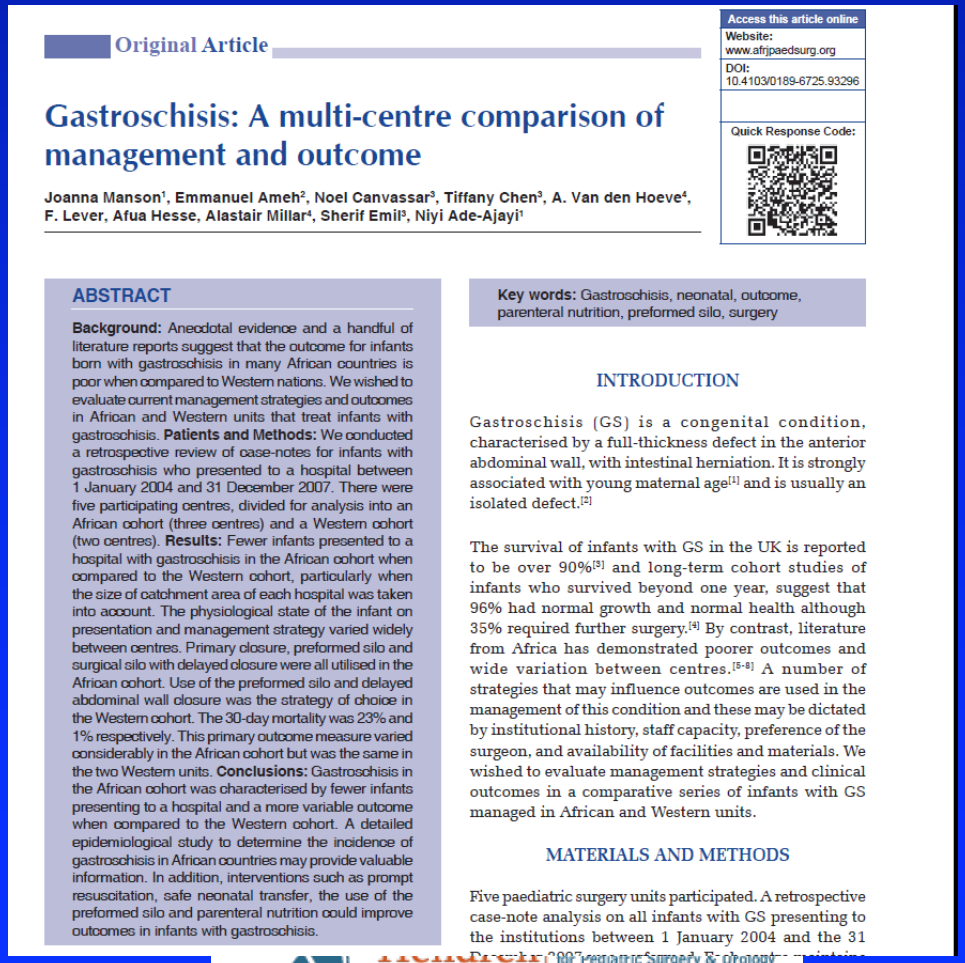
Gastroschisis

International Multicenter Study: 2004-2007

African J Pediatr Surg 2012;9:17-21



Original Article

Access this article online
Website: www.afrjpaedsurg.org
DOI: 10.4103/0189-6725.93296
Quick Response Code:

Gastroschisis: A multi-centre comparison of management and outcome

Joanna Manson[1], Emmanuel Ameh[2], Noel Canvassar[3], Tiffany Chen[3], A. Van den Hoeve[4], F. Lever, Afua Hesse, Alastair Millar[4], Sherif Emil[3], Niyi Ade-Ajayi[1]

ABSTRACT

Background: Anecdotal evidence and a handful of literature reports suggest that the outcome for infants born with gastroschisis in many African countries is poor when compared to Western nations. We wished to evaluate current management strategies and outcomes in African and Western units that treat infants with gastroschisis. **Patients and Methods:** We conducted a retrospective review of case-notes for infants with gastroschisis who presented to a hospital between 1 January 2004 and 31 December 2007. There were five participating centres, divided for analysis into an African cohort (three centres) and a Western cohort (two centres). **Results:** Fewer infants presented to a hospital with gastroschisis in the African cohort when compared to the Western cohort, particularly when the size of catchment area of each hospital was taken into account. The physiological state of the infant on presentation and management strategy varied widely between centres. Primary closure, preformed silo and surgical silo with delayed closure were all utilised in the African cohort. Use of the preformed silo and delayed abdominal wall closure was the strategy of choice in the Western cohort. The 30-day mortality was 23% and 1% respectively. This primary outcome measure varied considerably in the African cohort but was the same in the two Western units. **Conclusions:** Gastroschisis in the African cohort was characterised by fewer infants presenting to a hospital and a more variable outcome when compared to the Western cohort. A detailed epidemiological study to determine the incidence of gastroschisis in African countries may provide valuable information. In addition, interventions such as prompt resuscitation, safe neonatal transfer, the use of the preformed silo and parenteral nutrition could improve outcomes in infants with gastroschisis.

Key words: Gastroschisis, neonatal, outcome, parenteral nutrition, preformed silo, surgery

INTRODUCTION

Gastroschisis (GS) is a congenital condition, characterised by a full-thickness defect in the anterior abdominal wall, with intestinal herniation. It is strongly associated with young maternal age[1] and is usually an isolated defect.[2]

The survival of infants with GS in the UK is reported to be over 90%[3] and long-term cohort studies of infants who survived beyond one year, suggest that 96% had normal growth and normal health although 35% required further surgery.[4] By contrast, literature from Africa has demonstrated poorer outcomes and wide variation between centres.[5-8] A number of strategies that may influence outcomes are used in the management of this condition and these may be dictated by institutional history, staff capacity, preference of the surgeon, and availability of facilities and materials. We wished to evaluate management strategies and clinical outcomes in a comparative series of infants with GS managed in African and Western units.

MATERIALS AND METHODS

Five paediatric surgery units participated. A retrospective case-note analysis on all infants with GS presenting to the institutions between 1 January 2004 and the 31

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International Multicenter Study

Table 1: Summary of demographics, centre capacities and physiological condition at presentation

	London, UK	Irvine, USA	Accra, Ghana	Zaria, Nigeria	Cape Town, SA
Centre capacity					
Estimated catchment area (millions)	3	2	6	35	4.6
Number of consultant staff	4	3	3	4	5
Paediatric surgical beds	20	25	47	16	62
NICU beds	18	95	0	0	12
Outcomes					
30 day mortality (%)	1			23	
Total length of stay (days)	33 (15-217)			24 (8-121)	

30-Day Mortality in African Centers

Cape Town, South Africa: 5.2%

Accra, Ghana: 50.0%

Zaria, Nigeria: 100.0%

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Gastroschisis

Brazilian Study

Journal of Pediatric Surgery 54 (2019) 1481–1486

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

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

Marcelo Eller Miranda [a,b,*], Sherif Emil [c,*], Ricardo de Mattos Paixão [a,b], Clécio Piçarro [a,b], Paulo Custódio Furtado Cruzeiro [a,b], Bernardo Almeida Campos [a,b], Andrey Kaliff Pontes [b], Edson Samesima Tatsuo [a,b]

[a] Department of Surgery, School of Medicine, Universidade Federal de Minas Gerais
[b] Pediatric Surgical Service, Hospital das Clínicas of the Universidade Federal de Minas Gerais/Empresa, Brasileira, de Serviços Hospitalares. Belo Horizonte, Minas Gerais, Brazil
[c] Division of Pediatric General and Thoracic Surgery, The Montreal Children's Hospital, McGill University Health Centre, Montreal, Quebec, Canada

ARTICLE INFO

Article history:
Received 29 June 2017
Received in revised form 22 January 2019
Accepted 17 February 2019

Key words:
Gastroschisis
Middle income
Outcomes
Interventions
Resources

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.

Results: One hundred fifty-six newborns were treated for gastroschisis: 35 (22.4%) and 121 (77.6%) before and after 2002, respectively. When compared to the earlier cohort, patients treated after 2002 had higher rates of prenatal diagnosis (90.9% vs. 60.0%, $p < 0.001$), delivery at a tertiary center (90.9% vs. 62.9%, $p < 0.001$), early closure (65.3% vs. 33.3%, $p = 0.001$), primary repair (55.4% vs. 31.4%, $p = 0.013$), monitoring of bladder pressure (62.0% vs. 2.9%, $p = 0.001$), PICC placement (71.1% vs. 25.7%, $p < 0.001$), early initiation of enteral feeding (54.5% vs. 20.0%, $p < 0.001$), and lower rates of electrolyte disturbances (53.7% vs. 85.7%, $p = 0.001$). Mortality decreased from 34.3% before 2002 to 24.8% ($p = .27$) after 2002 despite an increase in the complex gastroschisis rate from 11.4% to 15.7% during the same period.

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

Type of Study: Therapeutic.

Level of Evidence: III.

Mortality:

Before 2002: 34.3%

After 2002: 24.8%

Gastroschisis
Bellwether

Journal of Pediatric Surgery 51 (2016) 1262–1267

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Gastroschisis: Bellwether for neonatal surgery capacity in low resource settings?☆,☆☆

Kat Ford [a,b], Dan Poenaru [c], Olivier Moulot [d], Kate Tavener [b], Sarah Bradley [e], Rouma Bankole [d], Nyaweleni Tshifularo [f], Emmanuel Ameh [g], Nelson Alema [h], Eric Borgstein [i], Ann Hickey [b], Niyi Ade-Ajayi [a,b,*]

[a] King's Centre for Global Health, London, UK
[b] King's College Hospital, London, UK
[c] MyungSung Christian Medical center, Addis Ababa, Ethiopia
[d] Centre Hospitalier Universitairee, Treichville, Cote D'Ivorie
[e] St George's Hospital, London, UK
[f] George Mukhari Academic Hospital, Pretoria, South Africa
[g] National Hospital, Abujah, Nigeria
[h] St Mary's, Lacor, Uganda
[i] Queen Elizabeth Hospital, Blantyre, Malawi

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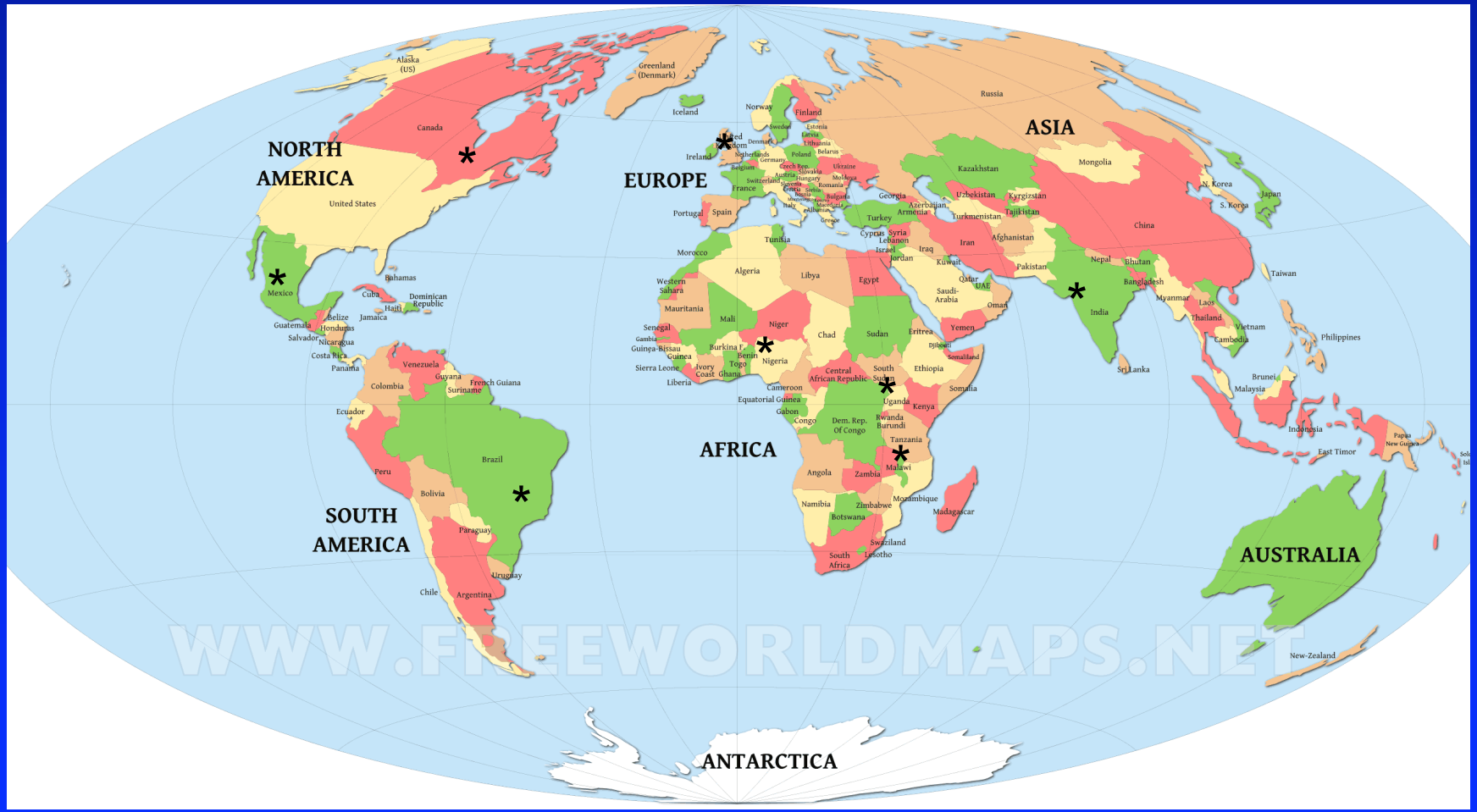

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Faculty Presentations

- Briefly describe your practice.
- The challenges of gastroschisis care and outcomes in your practice.
- What measures have been introduced to improve outcomes.
- The results of such measures.