



METHODS OF CLOSURE FOR GASTROSCHISIS AND OMPHALOCELE

1. In gastroschisis patients who underwent primary versus staged closure, what are the differences in the following outcome parameters: survival, complications/morbidity, length of stay, ventilator days, TPN days, and cosmesis?

SURVIVAL

- Grade C : There is no difference in survival for gastroschisis patients who underwent silo vs immediate closure. Overall survival is 90-95%.
- Grade D : Survival outcome is more closely related to factors such as bowel atresia, ischemia or short bowel syndrome.

COMPLICATIONS/MORBIDITY

- Grade C: In a prospective randomized trial, comparing primary vs. staged closure, there were no differences in the complications or morbidities between the two groups. The study was underpowered and patients with complications at birth were excluded.
- Grade D / E: Multiple retrospective and single institution studies have documented increased intra abdominal pressure and infections in patients who underwent immediate repair, while others showed no difference.

LENGTH OF STAY/ VENTILATOR/ TPN DAYS/ FULL FEEDS

- Grades C-E: The prospective randomized study was powered for the number of days on ventilator. Silo patients were on the ventilator for 3.17 days vs. 5.29 for primary repair (p=0.07). There was no difference in the LOS, days of TPN or feeds noted. The CAPSnet study involving 99 patients did not show any difference, and neither did other Grade E evidence papers, other than the King's College group that demonstrated higher ventilator settings in the immediate repair group.

COSMETIC RESULTS

- Grade E: The studies did not look at this aspect specifically. One study from Toronto was a case matched series and had median follow up of almost 3.5 years. They noted a higher number of umbilical hernias in the group of patients who had non-sutured closure of the defect.

Summary: There is a paucity of prospective trials with gastroschisis and the literature still consists of single institution studies, with one attempt at a RCT. Overall, there is not a large difference between the silo and immediate repair groups, but there is some evidence to suggest increased abdominal pressure and days of ventilation in the immediate closure group.

2. In omphalocele patients, what are the methods being used for closure? What is the optimal time for closure in omphalocele patients? What are the outcomes in patients with giant omphaloceles?

ALL STUDIES ARE GRADE E: EITHER CASE REPORTS OR SMALL CASE SERIES.

Immediate Closure: A majority of the defects are not amenable to this method of repair due to the size. In a report from King's College, London, 12 of 24 large defects were repaired primarily (2 with a patch) and had no mortality, less time on the ventilator, earlier return to full enteral feeds and lower hospital stay as compared to the 11 who were staged.

Staged Closure: A staged closure was defined as a planned approach to reduce the defect and either repair it in the late neonatal period or infancy. The data for this type of repair is derived from case reports or small case series, and typically describe only positive experiences. More recent experience reports use of alloderm, vacuum assisted closure methods, tissue expanders, and other types of mesh. True outcome measures are not possible to generate due to the heterogeneity of methods and patients.

Delayed Closure: Delayed closure was defined as using the strategy of allowing epithelialization of the defect with an intact amnion sac, or excision of the sac with skin closure and then subsequent (late or post infancy) closure of a ventral hernia. Methods of encouraging epithelialization included mercurochrome, povidone-iodine, silver sulfadiazine, and neomycin-bacitracin ointments. Repair of the ventral hernia was achieved by either primary repair, using separation of components, or patch closure. Prolonged hospital stays, and late morbidity with infection or wound related complications were reported. Outcome data with this group is difficult to accurately define.

Summary: Omphalocele closure techniques are much more variable and disparate. THERE IS NO CONSENSUS ON HOW TO MANAGE GIANT OMPHALOCELES. There is a need to more accurately define the population with regards to the size and location of defect. Outcomes data are difficult to define when comparing case series or reports of patients.

Classes of Evidence <i>(Surgical Infections 3:161-173, 2002)</i>	Rating Scales of Evidence <i>(Surgical Infections 7:275-303, 2006)</i>
I Prospective randomized controlled trials or meta-analysis of such trials II Prospective studies without randomization or other studies in which data were collected prospectively, and retrospective analyses based on clearly reliable data. These include observational studies, cohort studies, prevalence studies, and retrospective case control studies III Uncontrolled studies using retrospective data, such as clinical series or case reviews, and expert opinion	A ≥ 2 large class I studies B 1 large class I study C Small, randomized trials with uncertain results D ≥ 1 non-randomized trial with controls E Expert opinion, case reports, uncontrolled studies