

SINGLE INSTITUTION REVIEW OF OPERATIVE MANAGEMENT OF GIANT OMPHALOCELE: Noah J. Keime, MD candidate in the University of Colorado School of Medicine¹, Nell T. Weber MD^{2,3}, Nicole Becher MD^{2,3}, Noah Wilson BS⁴, Jose Diaz-Miron, MD^{2,3}, Shannon N. Acker MD^{2,3}

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Background, Objective, Purpose: Operative management of giant omphalocele varies based on size of defect, presence of liver or other viscera within sac, associated conditions, and degree of pulmonary hypoplasia. There are currently little data to guide choice of operative approach and how this impacts long-term outcomes. We aim to characterize whether surgical approach – staged closure during the neonatal period, or delayed closure – affects outcomes.

Methods: We conducted a single-center retrospective review of children diagnosed with giant omphalocele from 1/2010-1/2022. Selection criteria included patients with giant omphalocele who underwent treatment at the study site. Data collected included patient characteristics, clinical course, and outcomes. Comparisons were made based on type of closure (delayed vs staged repair) and excluded patients who underwent primary closure.

Results: We identified 29 patients; 5 underwent planned primary closure, 6 delayed and 16 staged. 2 patients died prior to closure. Most infants were male and had at least one associated comorbidity. Delayed and staged repair groups did not differ regarding sex, gestational age at birth, birth weight, or need for tracheostomy. Age at final closure was younger in the staged group. Total hospital days and total ventilator days (after excluding those who required tracheostomy) trended towards longer in the staged group. Infectious complications and median follow-up did not differ between groups. There were 4 additional deaths after closure; 1 in the delayed group and 3 in the staged group. 91% of patients required supplemental O2 for a median of 4.5 months with no difference between groups (p=0.5). Most survivors were meeting all developmental milestones at follow-up with no difference between groups. Need for ventral hernia repair was greater in the staged group.

Table 1. Demographics

		Number	Frequency
Sex	Male (n)	17	59%
	Female (n)	12	41%
Comorbidities	Pulmonary Hypoplasia (n)	11	50%
	Cardiac Anomalies (n)	9	41%
	Pentalogy of Cantrell (n)	1	5%
Tracheostomy (n)		4	18%

Gestational age at Birth, median (weeks)	37	-
Birth Weight, median (kgs)	2.7	-

Table 2. Clinical course and outcomes

	Staged Closure (mean)	Delayed Closure (mean)	p value
Age at Final Closure (weeks)	2.25	59.5	<0.001
Total Hospital Days	59.5	34	0.09
Total Ventilator Days	19	3	0.07
Follow-up Length (months), median	60	60	0.8
Deaths after Closure (n)	3	1	1
Need for Ventral Hernia Repair, frequency	56%	0%	0.05
Patients meeting developmental milestones	56%	67%	0.6

Conclusions: Long term outcomes including overall mortality and development at five years of age are equivalent between staged repair and delayed repair of giant omphalocele. However, staged repair may be associated with more ventilator days, total hospital days and higher risk of ventral hernia. Future work will aim to evaluate patient-centered outcomes, specifically family desires with regard to giant omphalocele management.

Significance: This data helps guide surgical management for giant omphalocele.