

DEFECT SIZE TO WEIGHT RATIO AS A PREDICTOR OF MODE OF CLOSURE IN EXOMPHALOS: A NATIONAL POPULATION STUDY

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Aim of the study

To describe the characteristics, management and early outcomes of a population-based cohort of children with exomphalos and to explore the predictive value of anatomical features of the abdominal wall defect on surgical management.

Methods

With ethics approval (ref: 12/SC/0416), a prospective population-based cohort study of live-born infants with exomphalos was undertaken in the UK and Ireland using the BAPS-CASS methodology. Early outcome data were collected over two years. A Defect:Weight ratio (DWR) was calculated as the ratio of defect diameter(cm) to birthweight(kg). Receiver Operating Characteristic (ROC) curves were used to assess the factors that predicted the use of staged closure defined as escharotic therapy, silo or patch. Infants who had non-operative therapy because they were unfit or had significant comorbidity were excluded from this assessment. Data were summarised as medians (range).

Main Results

162 infants were live-born with exomphalos. This was an isolated abnormality in 28% (46/162). Early operative fascial closure was undertaken in 96 infants (59%), with 36% having a staged technique (58/162). Escharotic therapy was the most commonly used mode of staged management (39/162, 24%).

Median defect diameter at the abdominal wall level was 3(1-15)cms and median DWR was 1.17 (0.28-6.00). $DWR \geq 1.64$ best predicted the use of staged closure (sensitivity 100%, specificity 88%) (AUC 0.96 95% CI 0.92-1), (Figure 1).

Median DWR was significantly higher in female infants (1.68 vs 0.89, $p=0.004$) and significantly lower in large for gestational age infants compared with those with a normal birthweight centile (0.82 vs 1.57, $p=0.005$).

By 28 days, seven of the 162 infants had died (4%), 34/133,(26%) were still in hospital, 9/150,(6%) were receiving invasive ventilation and 9/129,(7%) were not fully enterally fed.

Conclusions

The majority of infants had a primary closure and early outcomes were good. Classical definitions of 'major and minor' should be reconsidered. The predictive and prognostic value of $DWR \geq 1.64$ requires prospective assessment.

Figure 1: The relationship between DWR and the use of primary closure

