Use of Pulse Oximeter Placed on a Gastroschisis Silo to Monitor Intestinal Oxygen Saturation.

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Introduction

The use of a silo for temporary coverage of exposed viscera for newborns with gastroschisis has allowed gradual reduction of the externalized intestine into the abdominal cavity. However, there has not been an easy way to monitor blood perfusion to the intestine within the silo other than with visual examination. In addition, visual examination of bowel through the silo is sometimes difficult for medical staff due to serositis and peel over the bowel.

Methods

We have adopted an approach to monitor oxygen saturation of silo-contained intestine by placing a pulse oximeter sensor on the surface of the transparent silo to detect intestinal ischemia. Pulse oximeter sensors were applied on both a patient's distal extremity and the silo on five consecutive patients who were born with gastroschisis. The sensor was left on the silo during the entire period of gradual reduction. Perfusion index, pulse and oxygen saturation were observed and checked against the sensor placed on a peripheral extremity.

Results

The silo-placed pulse oximeter and peripheral pulse oximeter sensors showed a similar pulse and oxygen saturation throughout the reduction period in all five patients. In general, perfusion index was higher from the silo pulse oximeter compared to the peripheral pulse oximeter reading.

Conclusions

A pulse oximeter can be used to monitor intestinal oxygen saturation contained within a silo and help modulate the rate of manual reduction of intestine.