

Anesthetic Management for Separation Surgery of Omphalopagus Conjoined Twins

Essay

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(... رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ

□ النَّبِيِّ أَنْصَتَ عَلَيَّ وَ عَلِمَ وَالِدَيَّ

وَ أَنْ أَعْمَلَ صَالِحاً تَرْضَاهُ وَ أَدْخِلْنِي

□ بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ]

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List of Abbreviations

APL	: Adjustable pressure valve
BIS	: Bispectral index
Bpm	: Beat per minute
C3	: Cervical 3
CNS	: Central nervous system
CPAP	: Continuous positive airway pressure
CT	: Computerized tomography
CVP	: Central venous pressure
ECG	: Electrocardiogram
ETT	: Endotracheal tube
FiO₂	: Fraction of inspired O ₂
FRC	: Functional residual capacity
GIT	: Gastrointestinal tract
Hb	: Hemoglobin
HFOV	: High frequency oscillatory ventilation
ICU	: Intensive Care Unit
IMANA	: Islamic Medical Association of North America
IPPV	: Intermittent positive pressure ventilation
IV	: Intravenous

List of Abbreviations *(Cont....)*

LMA	: Laryngeal mask airway
Min.	: Minute
mmHg	: Millimeter mercury
MRI	: Magnetic resonance imaging
PaCO₂	: Arterial CO ₂ tension
PaO₂	: Arterial O ₂ tension
PEEP	: Positive end expiratory pressure
RR	: Respiratory rate
SAVI	: Seldinger-Assisted Videotelescopic Intubation
SBP	: Systolic blood pressure
SPO₂	: Arterial O ₂ saturation
TV	: Tidal volume
US	: Ultrasound

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Introduction

Anesthesia for separation surgery of conjoined twins is an extra challenging surgery because the anesthesiologists need to care for two patients at the same time instead of just one. It is a rare phenomenon but an increased incidence has been noticed, ranging in sub-Saharan Africa from 1:50 000 to 1:100 000 live births, or 1 in 400 monozygotic twin births (*Rode et al., 2006*).

Omphalopagus type: it is the second most common type of conjoined twins in which the twins are joined at the chest or abdomen, representing 30-35% of the total. Highest rate of separation survival is reported in this class of twins because the twins do not share a heart. Usually, only the liver is involved (*Beckwith, 2003*).

Responsibility for the anesthesia was assigned to two teams of anesthetists. Anesthetic management in conjoined twins requires an experienced team qualified to deal with infants and children. The choice of this team is frequently based on subspecialties (pediatrics, cardiac, intensive care, and neuroanesthesia), and most importantly, compatibility and ability to function as a team (*Al Rabeeah, 2006*).

All equipments need to be duplicated. Colour code everything to match the babies. Their limbs, lines and monitoring should all be colour coded also the anesthetists and surgical and nursing staff as well (*Rode et al., 2006*).

The separation surgery is a long marathon surgery with massive fluid shifts and loss of blood and blood components and their rapid replenishment in two pediatric subjects simultaneously with multi surgical specialties' involvement and their unique requirements, so it has frequent and abrupt intraoperative challenges (*Chalam, 2009*).

Aim of the Work

This work aims at discussing the incidence, types, etiology, preoperative assessment, intraoperative anesthetic management and postoperative care of the separation of conjoined twins.

Ethical and Moral Considerations

Why I must order twin baby to die, or "As we came together, we will also go together" Eliza Chulkhurst; one of conjoined twins who refused separation (*Rode et al., 2006*).

Debates on the separation of conjoined twins exist at the cutting edge of law, morality, and individuality.

If a person has rights by virtue of being a person (whatever this may mean), then a person who is conjoined will also have rights. Are conjoined twins one entity with one bundle of rights, or are they two distinct persons? If they are distinct persons, may there be an important difference in the rights that it is intelligible for a conjoined person to exercise physical possibilities that exist for singletons for example; the privacy (*Clucas and O'Donnell, 2002*).

The five goals of Islamic Shariah are protection and preservation of life, mind, private ownership, family and freedom of religion. Some of the rules of Islamic medical ethics are 1) Necessity overrides prohibition that is if there are certain items which are Islamically prohibited, under dire necessity they can become permissible. 2) Accept the lesser of the two harms if both can not be avoided. 3) Public interest overrides

the individual interest. 4) Harm has to be removed at every cost if possible (*Athar, 2004*).

The respect for life in Islam is common for all humans, irrespective of gender, age, race, color, faith, ethnic origin, financial status or productive stage of life. The right of the fetus in Islam is similar to the rights of a mature human being, including right to life, right to inheritance, right of compensation when injured by willful acts and right to penalize assailants (*Athar, 2004*).

On separation of conjoined twins, one dependent on the other, which one to save? It is a difficult situation. The Islamic emphasis should be to save both lives and one cannot be sacrificed over the other. However, if one has to do so, the twin who cannot function on its own and acts as a vestigial organ of the other, may have to be sacrificed during the process of separation (*Athar, 2004*).

Separating conjoined twins who are joined at the head is a controversial issue. Here we will talk about the omphalopagus type who do not share the head and the heart.

" Already, Egypt's Grand Mufti Sheik Mohamed Ahmed el-Tayeb has approved the separation provided that doctors

believed at least one would survive and that the surgery wasn't experimental (*Amanullah, 2002*).

Before and following the infants' birth, the family's right to privacy should be respected and preserved. The pediatric surgeon must develop a trusting relationship with the family because of the nature of the complicated decisions that must be made and the absolute need for informed consent (*O'Neil, 2003*).

To give an informed consent you need to understand the nature of the course of action to which you are consenting, which, in medical contexts, will include its probable and possible consequences and side effects and the nature of any alternative measures which might be taken and the consequences of doing nothing (*Harris, 2003*).

Detailed and repeated discussions are necessary particularly if, after all of the preoperative evaluations are done, it is evident that only one twin can survive or if one of the two will probably be left with a serious disability. However, in the end, the parents have the ultimate right to accept or refuse surgical separation. In all instances the situation must be approached with the outmost sensitivity for the rights and feelings of the parents and their children (*O'Neil, 2003*).