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tCAN syndrome (tight cord around the neck syndrome)

Introduction: Type A – nuchal cord that has freely sliding pattern and can undo itself. Type B - nuchal loop that encircles the neck in a locked pattern and cannot undo itself. Cord compression due to nuchal cord, leads to obstruction of blood flow in thin walled umbilical vein, while blood continues to be pumped out through the thicker walled umbilical artery. This may cause blood loss, hypovolemia, pale, tachycardia, anemia, acidemia and respiratory distress, dusky face and petechiae (Fetal). This seems to be akin to adult non-lethal strangulation.

Objective: To do literature search on nuchal cords data and compile into a possible syndrome called Tight Cord Around The Neck Syndrome (tCAN Syndrome).

Hypothesis: Literature search leads to the evidence of cardiorespiratory and neurological features of tCAN syndrome which is similar to adult non-lethal strangulation.

Methods: Definition- tCAN Syndrome is a cluster of cardio-respiratory and neurological signs and symptoms associated with unique physical features that are secondary to tight cord around the neck. Based on definition, literature was searched systematically and found the data sufficient to group them into one syndrome. Grading of the tightness of nuchal cords proposed into four categories.

Results: The physical features and cardio-respiratory and neurological features such as facial duskiness, skin abrasion of neck due to tight nuchal cord, facial suffusion, facial petechiae, sub-conjunctival hemorrhage, pallor of body below the tight nuchal cord and respiratory distress and hypotonia seems to result of tight nuchal cord. It is possible to grade tCAN syndrome based on severity of tightness of nuchal cord as: Grade 1 - conjunctival hemorrhage + petechiae Grade 2 - Third spacing duskiness of face, facial suffusion and Pallor. Grade 3 -Pressure on airway + Suffocation (Chest Compression) Respiratory distress and ± Pneumothorax/ Pneumomediastinum. Grade 4 - Stupor, transient encephalopathy and hypotonia

Conclusion: Literature seems to suggest that tight nuchal cord is similar in pathophysiology to non-lethal adult strangulations. Physical features including duskiness of face, abrasion of neck area, facial suffusion, facial petechiae and sub-conjunctival hemorrhage are telltale signs of non-lethal strangulation. Role of fundoscopy and otoscope may need to be considered to rule out retinal and hemotympanum respectively. Possible need for bedside EEG needs to be explored. Pathologist may need to explore brain pathology and hyoid bone fractures in tight nuchal cords babies who are stillborn. Those babies, who are depressed due to tCAN, may need to be labeled as "Compressional Asphyxia".

Biography

Morarji Peesay has completed his MD in General Pediatrics (Penn State Hershey Medical Center) and Perinatal Neonatal Fellowship (UMDNJ). He is an Associate Professor at MedStar Georgetown University Hospital, Washington DC. He has several inventions, patents and published books in Neonatology.

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