Introduction

Obstetric Anal Sphincter Injuries (OASIs – 3rd or 4th degree lacerations) can sometimes be associated with vaginal deliveries, with various identified risk factors, such as episiotomy, birth weight, operative vaginal delivery, obesity, nulliparity and operator experience. An additional risk factor for OASI may need to be considered, specifically, the time element of the parturition process. It is well-known that muscle stretching can sometimes avoid ligament and muscle tearing, as is often practiced by athletes (both professional and amateur). Since OASIs may occur at parturition, attempts at muscle stretching (e.g. manual stretching of the vaginal outlet prior to delivery) and application of warm compresses to the perineum, are examples of actions which have been used to minimize the likelihood of such injury. Operative vaginal delivery is known to increase the incidence of OASI, but the size of the instrumentation (i.e. the suction cup used for vacuum assistance) does not add to the diameter of the emerging fetal head from the vaginal outlet. The pace of the parturition process, perhaps not allowing muscle stretching, as would occur with crowning, may be a risk factor. A retrospective observational analysis of vaginal deliveries was conducted to see if the time element of parturition could be a factor as to whether OASI occurs at vaginal delivery.

Methods

The duration of parturition was defined as the time from crowning until delivery, where this subjective element could be determined. The Structured Query Language (SQL) perinatal database that is consistently used in the department was the data source for this retrospective observational analysis.

The point at which crowning began to appear was identified by the Attending or Resident in attendance at each vaginal delivery.

Results

At this institution, there were 2,072 vaginal deliveries from March 1, 2017 through July 31, 2019, during which time 72 episiotomies were performed (3.5%), and 67 OASI occurred (3.2%). There were 91 deliveries which were vacuum-assisted (4.4%), with 16 (17.6%) resulting in OASI, and 1,981 deliveries which were spontaneous, with 50 (2.5%) resulting in OASI.

Calculations were made for only those cases for which crowning was identified. When comparing the incidence of OASI with the duration of parturition, the average duration of parturition of the 67 cases of OASI was 2.4 minutes, while the average duration of parturition for those 2,005 deliveries in which no OASI occurred was 4.1. This was a statistically significant negative correlation (i.e. the longer the parturition, the less the likelihood of OASI).

The difference in the duration of parturition in vaginal deliveries, for which OASI occurred and those in which it did not, is graphically displayed below.

Absence of Crowning

Obstetric Anal Sphincter Injuries (OASIs) Absence of Crowning (Recognition) in Vacuum-Assisted Vaginal Deliveries

Comparison of Episiotomy Incidence

Obstetric Anal Sphincter Injuries (OASIs) Comparison of Episiotomy Incidence

Comparison of Type of Episiotomy

Obstetric Anal Sphincter Injuries (OASIs) Comparison of Episiotomy Type

CONCLUSIONS

This contemporary investigation confirms that episiotomies and operative vaginal delivery are indeed risk factors for OASI. However, it appears that the duration of the delivery process may be quite relevant, in that this observational study showed that the incidence of OASI was negatively correlated with its associated duration. For operative vaginal deliveries especially, we may need to recognize the importance of the time element of the parturition process, slowing the pace of the delivery (if fetal status allows), enabling adequate perineal stretching to occur, so as to minimize the occurrence of OASI.

REFERENCES


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