



HEALING OF HYMENAL INJURIES IN PREPUBERTAL AND ADOLESCENT GIRLS: A descriptive study

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Dr. McCann's study is a retrospective study of hymenal injuries that documented the healing process and outcome of hymenal trauma that was sustained by 239 prepubertal and pubertal girls whose age ranged from 4 months to 18 years old. This is a multicenter study involving the Helfer Honorary Society's List Server members. They were asked to participate by giving patient medical information and photographs of a recent genital injury from any cause. Patients were required to have at least 1 follow-up examination.

Out of 239 female patients there were 113(47%) prepubertal girls and 126(53%) adolescent girls. The timing of examination and cause of injuries were noted. Period between an injury and the initial examination ranged from 1 hour to 3days. 164(69%) of 239 patients were seen within 24 hours after their injury. A total of 208(87%) were examined within 48 hours. The other 31 (13%) girls were first evaluated between 48 and 72 hours after their injury. The cause of injuries were: 21 (19%) accidental or noninflicted injuries, 73 (65%) injuries secondary to abuse and 19 (17%) "unknown cause" . All 126 pubertal adolescents were said to be victims of sexual assault.

The hymenal injuries healed at various rates and except for the deeper lacerations left no sign of previous trauma. Abrasions and "mild" submucosal hemorrhages disappeared within 3 to 4 days, whereas "marked " hemorrhages persisted for 11 to 15 days. Only petechiae and blood blisters proved to be "markers" for determining the appropriate age of an injury. Petechiae resolved within 48 hours in the prepubertal girls and 72 hours in the adolescents. A blood blister was detected at 34 days in an adolescent. As lacerations healed, their observed depth become shallower and their contour smoothed out. Of the girls who sustained "superficial" , "intermediate", or "deep " lacerations,15 of 18 prepubertal girls had smooth and continuous appearing hymenal rims on follow-up whereas 24 of 41 adolescents' hymens had a normal, "scalloped" appearance and 30 of 34 had no disruption of continuity on healing. The final 'width" of a hymenal rim was dependent on the initial depth of the laceration. No scar tissue formation was observed in either group of girls.

The result of Dr. McCann's study is similar to the study of Kerns et al (1992) that majority of hymenal laceration smooth off over time. The observation of Berenson et al (2002) of hymenal rim width of <1mm in 3-8yo girls with history of penetration was consistent with the outcome McCann's study. This phenomenon in the prepubertal girls was attributed to the development of a very thin, delicate membrane that appeared at the base of the laceration as the healing took place. One difference of McCann's study to that of Heppenstal-Heger et al (2003) who reported, "All tears occurred in the posterior 180 degrees between 4 and 8 o'clock except for 1 accidental avulsion injury" is that the McCann study identified hymenal laceration in all locations on the hymenal rim in both the prepubertal and the adolescent girls. One explanation they gave is the type of examination method used. Several of the anterior and lateral lacerations that they identified were detected only during prone, knee to chest position.

The authors concluded that the hymenal injuries healed rapidly and except for the more extensive lacerations left no evidence of a previous injury. The rapid resolution of the petechiae along with the persistence of blood blisters did provide markers for approximating the age of an injury. The multiple locations of the lacerations on the hymenal rim are a reminder of the importance of the multimethod approach during examinations. These findings reaffirm the complex healing process that occurs after a hymenal injury. These data heighten the examiner's need to exercise caution before calling a finding "normal, without evidence of previous injury."

Comment:

Dr. McCann's research provides us with good evidence that hymenal injuries heal amazingly well. This study confirms anew what we have frequently observed in our patients with no noted injury at the time they seek consult, especially if the physical examination is done weeks after the incident.



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