labial separation. The degree of dilatation can extend up to several millimetres and confusion with the vaginal orifice is possible. In our experience using labial separation, the urethral orifice usually appears closed.

There is less information available from the literature regarding normal and abnormal urethral orifice appearances. Gardner reports that urethral dilatation occurred in 28% of her sample of 79 prepubertal girls presumed non-abused, using labial traction.¹⁸ McCann and colleagues reported in a sample of 93 girls selected for 'non-abuse' aged 10 months to 10 years that 15% showed urethral dilatation with labial traction.¹⁶ However, it is also known that objects can be threaded into the urethra and even postpubertal urethral coitus has been described.²⁴

Follow up of a 4 year old known to have been abused with urethral dilatation and abnormal genital and anal signs, showed fluctuating dilatation until she was protected. Further information is needed on this physical sign.

The colposcope has proved to be acceptable to children, parents, and doctors and is being used routinely in Leeds for examination in CSA. A more comfortable and detailed examination with ease of photographic recording are the main advantages. Photographs allow discussion with peers and can be used for teaching, audit, and research. Second medical opinions can be given without the need to re-examine the child. Changes on follow up examination can be better appreciated. Some examiners feel that the colposcope may not allow any more to be seen than with simple magnification by the otoscope or illuminated hand lens.¹² Peer review allows objective assessment of complex information outside the tensions of the consulting room. Doctors are supported in discussing a difficult diagnosis usually with major implications for child, family, and professionals.

In conclusion, this study of children seen with concerns regarding CSA has demonstrated the effective use of the colposcope in the examination of the genitalia in prepubertal girls. All findings should be carefully documented. Interpretation of findings is made in the wider context of the history and previous examinations.

There is now greater consensus over the significance of physical signs in CSA. An association between urethral dilatation and a gaping hymenal orifice and CSA is suggested from this study. Other findings associated with CSA in other studies have been confirmed.

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Commentary

Practice in the area of the medical diagnosis of CSA continues to evolve as new observations and experiences are added to our knowledge base. For the past decade, professionals in the field have been working toward agreement as to terminology (for example, the draft guidelines for descriptive terminology proposed by the American Professional Society on the Abuse of Children) and the implication of various physical findings with regard to CSA.^{1–6} Clinicians have gathered in consensus panels to categorise physical findings such as those specific or diagnostic for CSA, those strongly suggestive of CSA, and non-specific abnormalities which may be the results of CSA but are also found in the non-abused population. The quality of data collection has improved considerably with careful application of sound study design aimed at decreasing potential bias: for example, the use of larger study populations, of normal controls for comparison, of panels of experts evaluating colposcopic photographs, and of thorough documentation of CSA independent of the physical findings.

Although a standardised, agreed upon list of normal and abnormal findings is still under development by the American Professional Society on the Abuse of Children, independent studies have arrived at similar conclusions albeit obscured by differences in terminology.

There are several excellent reviews and texts, many supplemented by photographs.^{4 7-9} McCann and colleagues reported significant numbers of non-abused prepubertal girls with erythema of the vestibule, periurethral bands, labial adhesions, lymphoid follicles of the fossa navicularis, midline avascular areas of the posterior fourchette (linea vestibularis), mounds, tags, and internal vaginal ridges.¹⁰ In a series of 211 girls aged 1 month to 7 years, Berenson *et al* found hymenal 'clefts' superiorly and laterally on the hymenal rim, but none were seen inferiorly on the lower half of the hymen.¹¹ Also commonly noted were vestibular bands, longitudinal intravaginal ridges, and external ridges; hymenal tags and 'bumps' were seen less often. Using a longitudinal study design, Berenson has followed up a cohort of girls from the newborn period until age 3, and noted external ridges, intravaginal ridges, tags, and rare bumps not related to ridges, and notches (none of which were located in the posterior or 5-7 o'clock position).¹² Similar findings of bumps, increased vascularity, hymenal asymmetry, and midline avascular areas in a non-abused sample were reported by Gardner.¹³

The use of hymenal orifice size as the sole indicator of penetration has been criticised by a number of authors,^{12 14-17} varying as it does with examination method, hymenal configuration, degree of relaxation, etc. The depth of the inferior rim may be more useful.¹² This may be found to be minimal or 'attenuated' more commonly among abused than non-abused girls.^{5 14} In short, we have learned in the last 10 years that some findings originally ascribed to CSA are normal variants.

Many girls who have been sexually abused have normal findings on genital examination, as summarised in the review of Bays and Chadwick, ranging from 26 to 73%.⁴ Using a standardised classification scheme, Adams and colleagues found 77% of CSA victims to have either a completely normal or a non-specific genital examination.⁵ With regard to consensus opinion on findings indicative of CSA, several classification schemes have been published and provide guidance for clinicians.^{1 2 4 5 6 18} In particular, most examiners agree that erythema and labial adhesions are non-specific findings, common in normal children. Most CSA examiners would not agree that a transverse hymenal diameter of greater than 4 mm should be considered a sign of abuse: for a hymenal opening to be considered enlarged and suggestive of abuse it must either be accompanied by other hymenal changes (such as a narrow hymenal rim in the 6 o'clock position, scarring, posterior/lateral concavities, or transections) or be greater than two standard deviations from the means published in a study of non-abused children by McCann *et al*.¹⁰ 'Gaping' (the presence of a visible hymenal orifice while the child lies with thighs abducted but without labial separation) has not been described in the American literature in either abused or non-abused populations. Prolapse of the urethra usually occurs in the absence of trauma or sexual abuse. There is no series reporting urethral

dilatation alone as a finding in sexual abuse.

In the study reported here of the genital examination findings in 109 prepubertal girls with suspected CSA, Hobbs and his colleagues report a very high rate of abnormality. Only two children appeared entirely normal, and 59 were thought to have signs consistent with what the authors defined as blunt force penetrating trauma (hymenal transection/major notch, scar or hymenal attenuation). It is unclear if any of the findings tended to cluster and to what extent children had only non-specific findings, such as labial adhesions or erythema. It would be helpful to read more information on the psychosocial assessment these children underwent, and to be certain that none of the children were diagnosed as being abused on the basis of physical findings alone. As a result it is impossible to comment on the rates and nature of various genital findings with respect to categories of suspected, probable, or confirmed CSA. Given the potential disagreement over the interpretation of some of the findings, it would be useful to have further detail, perhaps supported by photographs, on the definition and location of such findings as 'major notches', transections, and hymenal attenuation. For example, how are major notches differentiated from transections?

Practitioners in the area of CSA have much to learn from each other. Thoughtful additions to the literature are greatly appreciated, more so when descriptive terminology is carefully defined and cautiously applied. There may well be differences in interpretation, and contradictory reports, but with detailed documentation of methods and results, we will continue to accumulate the data we need to differentiate with greater confidence normal from abnormal anatomy, and to understand the significance of such findings with regard to the determination of CSA.

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