Perianal appearances associated with constipation

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Abstract

The perianal appearances were studied prospectively of 136 constipated children (mean age 3.9 years, 67 boys, 69 girls). Anal dilatation, fissures, tags, warts, perianal oedema, redness, blueness, and veins were recorded. It was noted whether dilatation occurred immediately or at 30 and 60 seconds with the buttocks minimally separated, and on subsequent firm lateral traction of the buttocks. The degree of faecal loading was assessed in all children. Anal dilatation was found in 24 (18%) and first appeared on lateral traction in eight (6%). In three quarters of the children with dilatation faecal loading or perianal signs were present. Fissures were found in 35 (26%) children and tags in seven (5%). Perianal redness was more likely to be associated with fissures, and blueness with dilatation.

We conclude that there are no pathognomonic perianal signs in childhood constipation and that the technique of anal examination should be standardised.

Although constipation is a common disorder in childhood, we know of no detailed description of the perianal appearances. Such information is urgently required, as the physical signs seen in constipated children may be similar to those found in the victims of sexual abuse. Hobbs and Wynne reported the presence of reflex anal dilatation or a dilated anus in 22 of 35 sexually abused children (63%), fissures in a similar number, and venous swelling with blue discoloration of the perianal skin.¹ In a further series these authors reported 337 confirmed or probable victims of childhood sexual abuse of whom 143 (42%) had anal signs.² Of those with anal signs 42% had anal dilatation, 53% had fissures or tears, 53% had perianal reddening, 38% had anal laxity, 24% had venous congestion, 8% had scars or tags, and 4% had warts.

In a retrospective analysis of 129 severely constipated children (all tertiary referrals), Clayden reported anal dilatation in 15% with a clear association between faecal loading and dilatation.³ A fissure was recorded in one patient, although smaller fissures may have been present in others as only the most prominent anal findings were recorded (G S Clayden, personal communication). In a series of 343 severely constipated patients followed up over many years anal fissures were the most striking perianal characteristic in 6% and anal tags in 3% (G S Clayden, unpublished observations).

Anal dilatation has also been reported in children who were not being investigated for child-

hood sexual abuse or constipation. McCann *et al* investigated 267 normal prepubertal children and found anal dilatation in 49% (mean observation time four minutes, range up to eight minutes); only 15% of these children showed signs of dilatation within 30 seconds, and 27% within two minutes.⁴ None of the subjects had anal fissures. Stanton and Sunderland investigated 200 children attending community, general paediatric, and renal clinics and found that 14% had reflex anal dilatation.⁵ These authors found four children with fissures, although three of these were also constipated.

As examination techniques are not uniform and descriptive terms not always precise, it is possible that different authors have reported different phenomena.⁶ We have therefore prospectively examined children referred because of constipation to establish the incidence and characteristics of perianal signs.

Patients and methods

One hundred and thirty six children were examined over a period of one year. All had constipation and 133 were referrals from general practitioners. The mean age was 3.9 years (range 6 weeks to 13 years), and 53 (39%) were under 2 years of age. There were 67 boys and 69 girls and the duration of symptoms ranged from six weeks to nine years. All children were examined in a hospital outpatient clinic with one or both parents present and the examination was a routine part of the initial assessment. The examination was standardised and carried out by the same person (UA) in all cases. Children under the age of 2 years were examined supine, and older children in the left lateral position. The examination lasted a little over a minute. For the first 60 seconds the child's anus was observed with the buttocks minimally separated and it was noted when dilatation was first seen and for how long it lasted. After 60 seconds firm lateral traction was applied to the buttocks and any effect on the anus noted. No child was examined in the knee-elbow position.

We also recorded whether dilatation was full (relaxation of both anal sphincters) or partial (relaxation of the external sphincter only). When dilatation is full the rectum can be seen through the anal canal; when it is only partial the anal canal alone can be seen, as if looking into a hollow cone. The latter finding is distinct from the mandatory relaxation of the external sphincter, which occurs after voluntary constriction of that sphincter. It can also be distinguished from the lax and often open anus seen in

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neurological conditions such as meningocele.

Apart from dilatation we looked for anal fissures (defined as a breach in the squamous epithelium of the lower third of the anal canal),⁷ anal skin tags, anal warts, perianal oedema, perianal veins, and perianal discoloration. No instruments were used during the inspection. The number, age, and location of fissures, the number and location of skin tags, the prominence (visible, prominent, or varicose) of veins, and degree of perianal discoloration (redness—faint, definite, or angry; blueness—faint, definite, or deep) were recorded.

The degree of faecal loading was assessed by abdominal palpation and rectal examination and graded by Clayden's method: no stool palpable in the abdomen=grade 0; small suprapubic mass=grade 1; stool palpable half way up to the umbilicus=grade 2; stool palpable up to the umbilicus=grade 3; stool palpable a third of the way from the umbilicus to the xiphoid process=grade 4; stool palpable two thirds of the way from the umbilicus to the xiphoid process=grade 5, and stool palpable at the rib cage=grade 6. Rectal loading was found only in those patients with faecal abdominal masses.

The χ^2 test was used to assess the significance of differences between groups.

Results

DILATATION

Twenty four children (18%) had some degree of anal dilatation (full or partial) during the observation period, and 17 of these were girls. Their mean age was 2.8 years, range 2 months to 11.5 years. The timing of dilatation is shown in table 1, and the correlation between dilatation and faecal loading in table 2. Spontaneous dilatation occurred either immediately or at about 30

seconds. When dilatation occurred it usually lasted at least 15 seconds (often a minute or more), regardless of whether it was full or partial. There was no association between length of dilatation and faecal loading. The anuses of eight children only became dilated when firm lateral traction was applied to the buttocks and five of these had detectable faecal loading (two had full dilatation). Anal fissures were seen in five of the eight, and a small rectal prolapse and an anal tag were seen in one patient each. Three children had no perianal signs and two of these had no faecal loading. Seven of the eight children had no dilatation on follow up examination two weeks later.

Fourteen children had dilated anuses without faecal loading; nine of these had partial dilatation and five had full dilatation (table 2). Of the nine with partial dilatation, five had fissures but the other four had no abnormal perianal signs. Of the five with full dilatation, one had a rectal prolapse and two had anal fissures, but in the other two children no obvious perianal signs were found. In none of the five children with full dilatation was dilatation seen on follow up examination two weeks later. Seven of the nine children with partial dilatation were also re-examined and three showed full dilatation, but had faecal loading at that time. Ten children had some degree of faecal loading with either partial (n=4) or full (n=6) dilatation. Anal fissures were found in only three (one full and two partial dilatations), a tag and a fissure in one (partial dilatation), and six children had no perianal features. There were 36 children who had faecal loading without dilatation.

ANAL FISSURES

Anal fissures were found in 35 children (26%); their mean age was 2.8 years, range 2 months

Table 1 Onset of full or partial dilatation during a 60 second observation period followed by lateral traction of the buttocks in 24 patients

	Full dilatation	Partial dilatation	Total No of dilatations
Dilatation:			
Seen immediately	3	2	5
Seen at 30 seconds	4	7*	11*
Seen at 60 seconds	0	0	0
Seen on lateral traction	4*	5	9*
Total No	11	14	25

*One child had a partial dilatation at 30 seconds but became fully dilated on lateral traction.

Table 2 Association between anal dilatation and faecal loading in 136 patients. Values are expressed as number (%) of total

	Degree of dilatation		
	None	Partial	Full
No faecal loading, no abnormal perianal signs	76 (56)	9 (7)	5 (4)
No faecal loading, abnormal perianal signs	0	5 (4)	3 (2)
Total No with faecal loading	36 (26)	4 (3)	6 (4)
No with abnormal perianal signs	0	3 (2)	1 (1)
Degree of faecal loading:			
Grade 1	4	0	0
Grade 2	13	2	1
Grade 3	12	2	4
Grade 4	5	0	1
Grade 5	2	0	0
Grade 6	0	0	0
Total	112 (82)	13 (10)	11 (8)

Table 3 Numbers of patients with perianal redness, blueness, and veins. The figures in parentheses are percentages of the total

		Age (years)		Fissures		Dilatation	
Total 136 (100)		Under 2 53 (39)	Over 2 83 (61)	With 35 (26)	Without 101 (74)	With 24 (18)	Without 112 (82)
Redness:							
Not seen	51	13	38	11	40	8	41
Faint	52	20	32	10	42	9	43
Definite	26	14	12	8	18	5	23
Angry	7	6	1	6	1	2	5
Blueness:							
Not seen	86	35	51	18	68	12	74
Faint	24	10	14	8	16	9	15
Definite	23	7	16	8	16	3	20
Deep blue	3	1	2	1	1	0	3
Veins:							
Not seen	114	50	64	28	86	20	94
Visible	20	2	18	7	13	4	16
Prominent	2	1	1	0	2	0	2
Varicose	0	0	0	0	0	0	0

to 10 years; 16 were less than 1 year of age (46%) and 21 were under 2 years of age (60%); 22 (63%) were girls.

Most of the fissures were superficial and shallow and commonly seen only on lateral traction. In 17 patients the fissures looked fresh (active or signs of recent bleeding); in 15 the fissures were older, and in three patients both old and fresh fissures were seen. In 17 children only one fissure was found; in 10 there were two fissures, and in eight multiple fissures were seen. Anterior fissures were found in 10 patients, posterior fissures in four, both anterior and posterior fissures in two, and multiple fissures or fissures located elsewhere in 19. Eleven patients had both anal dilatation and fissures.

ANAL TAGS

Anal tags were seen in seven patients (5%) and were located either anteriorly or posteriorly in five patients. In five children small fissures were seen at the base of the tags, and in three there were fissures elsewhere as well. Only one patient had two skin tags. In two cases the mother said the tag had been present since birth.

ANAL WARTS AND PERIANAL OEDEMA

Neither anal warts nor perianal oedema were seen.

PERIANAL DISCOLORATION (TABLE 3)

The assessment was subjective but redness was associated with age under 2 years ($p=0.01$) and with the presence of fissures ($p=0.002$) but not dilatation ($p=0.7$). Blueness on the other hand was not significantly related to age ($p=0.7$) or fissures ($p=0.1$), but was related to dilatation ($p=0.028$). Perianal veins were more likely to be seen in children over the age of 2 ($p<0.05$) but there was no correlation with fissures ($p=0.6$), or dilatation ($p=1.0$).

Thirty six patients (26%) had received local treatment (suppository, enema, or operative clearout) in the past, but only 12 had in the two weeks before they were examined. Four children with dilatation had received local treatment, but in all cases more than four months previously. There was no association between local

treatment and either fissures or perianal discoloration.

Discussion

Some degree of anal dilatation is commonly seen in constipated children as the incidence of 18% ($n=24$) in this study suggests. This is in keeping with Clayden's retrospective report of 15%,³ although our children had milder constipation, and with Stanton and Sunderland's incidence of 14% among children who were neither abused nor constipated.⁵ Hobbs and Wynne found a high incidence (42%) of anal dilatation in sexually abused children with anal signs but overall their incidence of anal dilatation in abused children was 18%.² All their children were examined in the left lateral position for about 30 seconds. McCann *et al* reported a high incidence of anal dilatation (49%) in healthy children who had not been abused, but their mean observation period of four minutes was four times as long as the observation period in our study.⁴ By 30 seconds only 15% of children had dilated anuses. All the children in the study by McCann *et al* were examined in the knee-chest position. We are unaware of any data comparing anal findings in children examined in the left lateral and the knee-chest positions.

We did not routinely measure the diameter of the dilated anus but when full dilatation was seen the maximum diameter was about 1–1.5 cm, although the diameter in partial dilatation was sometimes as small as 0.5 cm. The full dilatation reported here is larger than the lower reading of 0.5 cm given by Stanton and Sunderland.⁵ In the study by McCann *et al* the anterior-posterior diameter varied from less than 0.1 cm to 2.5 cm (mean 1).⁴

Among our children with full dilatation, in whom by definition the rectum could be seen, the relatively high incidence of faecal loading (55%) suggests that the dilatation may have been mediated by the rectoanal inhibitory reflex. In other children local factors may have been responsible for the dilatation, as in the two with fissures and one with rectal prolapse. Two children (1.5% of the total) with full dilatation had no evidence of faecal retention when examined, nor were any local abnormalities found.

In children with partial dilatation, the rectum could not be seen. These patients had a relatively low incidence of faecal loading (31%) and it is possible that some centrally regulated factors have a causative role. We saw dilatation in some toddlers where the dilatation increased or decreased depending on the child's emotions during the examination. It is also possible that partial dilatation is an exaggeration of the normal relaxation of the external anal sphincter after voluntary contraction. Eight children with partial dilatation had local abnormalities but in a further five no local abnormalities were present. In a total of six children (4% of the total) no obvious cause was found for the dilatation (two full and four partial). Repeat examinations were carried out on the five children with full dilatation, and of seven of the nine with partial dilatation. None of the children with full dilatation had any dilatation two weeks later, whereas in three of the seven children with partial dilatation full dilatation was seen, but in association with faecal loading.

One third (n=8) of all dilatations noted in this study were not seen until lateral traction was applied to the buttocks, suggesting that the way in which the examination is undertaken may influence the incidence of dilatation. It is of note, however, that six of these children had either faecal loading or abnormal perianal signs. Sexual abuse can never be totally excluded, although it was not suspected in any of the 24 children with dilatation. Sexual abuse has subsequently been disclosed in one child in whom anal dilatation was not seen. This child (one of three secondary referrals) had no perianal signs and the abuse took place many years after the onset of the constipation.

We found a high incidence of anal fissures (n=35, 26%), which might be explained by the relatively high incidence of infants referred (53 (39%) were less than 2 years old). McCann *et al* found no anal fissures among their 267 normal children but it is of note that only 5% of their patients were less than 2 years old.⁴ The mean age of children in our study was 3.9 years, compared with 5.4 years in Clayden's study of constipated children,³ 5.7 years in the normal children reported by McCann *et al*,⁴ and over 7 years in the sexually abused children reported by Hobbs and Wynne.² In the latter study anal fissures were found in 53% of 143 sexually abused children who had anal signs (23% of the full series of 337 children). Hobbs and Wynne reported that multiple anal fissures were particularly indicative of anal abuse.² In only six of the 35 children with fissures in our study were these found posteriorly, the site most commonly found in sexually abused children.¹ Eight children in our study had multiple anal fissures.

There appears to be an aetiological association between anal fissures and tags; five of seven patients with tags also had anal fissures. It is interesting that in two of these seven the

mother said that the tag dated back to birth and certainly predated the fissure. Our 5% incidence of anal tags is lower than the 11% found in the normal children studied by McCann *et al*,⁴ but is similar to the 3% found in the 337 children reported by Hobbs and Wynne.² Clayden recorded anal tags in 3% of his severely constipated patients (G S Clayden, personal communication).

Perianal redness was found in 62% of our patients, higher than the 41% among normal children reported by McCann *et al*⁴ and the 53% found in sexually abused patients reported by Hobbs and Wynne.² There is a suggestion from our study that perianal redness may be associated with anal fissures and it is commoner in younger children who are still wearing nappies.

Blueness was associated with anal dilatation and veins were more common in the older children, possibly as a result of straining at stool. The swollen and inflamed perianal tissue with prominent veins reported in sexually abused children was not seen in any of our patients. Local treatment within the previous two weeks does not seem to be associated with local signs.

We conclude that full or partial dilatation may be seen in children presenting with constipation, although the incidence of anal dilatation is lower than in sexually abused children with anal signs. Only three quarters of the children with anal dilatation in our study had detectable faecal loading or perianal abnormalities. These abnormalities included fissures (commonly anterior or multiple), skin tags, and red and blue perianal discoloration. No anal warts or perianal oedema were seen. Fissures seem to be unusual in normal children, but are found in constipated and in sexually abused children. It is clear that there are no pathognomonic perianal signs in childhood constipation. Age may play a part in the incidence of some of the signs as may the technique of, and position adopted for, the examination.

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- 1 Hobbs CJ, Wynne JH. Buggery in childhood—a common syndrome of child abuse. *Lancet* 1986;i:792–6.
- 2 Hobbs CJ, Wynne JH. Sexual abuse of English boys and girls: the importance of anal examination. *Child Abuse Negl* 1989;13:195–210.
- 3 Clayden GS. Reflex anal dilatation association with severe chronic constipation in children. *Arch Dis Child* 1988;63: 832–6.
- 4 McCann J, Voris J, Simon M, Wells R. Perianal findings in prepubertal children selected for non abuse: a descriptive study. *Child Abuse Negl* 1989;13:179–93.
- 5 Stanton A, Sunderland R. Prevalence of reflex anal dilatation in 200 children. *Br Med J* 1989;298:802–3.
- 6 Agnarsson U, Gordon C, Wright C, McCarthy G, Evans N. Reflex anal dilatation and sexual abuse. *Arch Dis Child* 1989;64:303–4.
- 7 Killingback M. Anal fissure and fistula with special reference to high fistula. In: Decosse JJ, Todd IP, eds. *Anorectal surgery*. Edinburgh: Churchill Livingstone, 1988:80–1.