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Fistulae and abscesses in symptomatic perianal Crohn's disease

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Abstract. Perianal disease occurs in up to 90% of patients with Crohn's disease [1–4]. Many of these patients have only mild symptoms or are asymptomatic and thus require no intervention. Clinical features are variable and include hypertrophic skin tags, ulceration, perianal abscess and fistulae, anal canal ulcers, fissures, induration and stenosis. Perianal abscess and fistula often occur simultaneously and are usually symptomatic. Symptoms range from pain, discharge, bleeding, to gross faecal incontinence with restriction of lifestyle and sexual activity. There is little uniformity amongst clinicians in the investigation and management of perianal Crohn's disease [5]. This is due, in part, to the variability in both frequency and severity of attacks and to spontaneous remissions and exacerbations of perianal disease. Secondly, assessment of severity of illness and the response to treatment is difficult to objectively quantitative. Improvement in quality of life is the aim of therapy not cure of perianal disease. Investigative modalites for perianal Crohn's are changing due to the limitations of conventional fistulography, CT scanning and clinical evaluation. MRI scanning has been introduced more recently, however, requires an endorectal coil to obtain good anatomical visualisation and has limited availability [6–12]. Endorectal ultrasonography has been shown to detect more abscesses and fistula in Crohn's patients than clinical examination, proctosigmoidoscopy and CT scanning, better delineation of fistulous tracts than fistulography and has the ability to change the clinical management of referring physicians [13–16]. Most fistulae are not explored surgically and therefore the documentation of fistulae in symptomatic Crohn's disease has been limited and are usually classified only as high or low [4]. Park's has pointed out this terminology for cryptoglandular disease is ". . . an ambiguous one" and hence developed a more precise nomenclature [17]. The objective of this study was to document prospectively by transanorectal ultrasonography fistulae and abscesses in symptomatic perianal Crohn's disease and to classify them according to Park's nomenclature and determine the incidence of these at the time of referral for a new exacerbation of the disease. Anal wall thickness was measured prospectively by ultrasonography as it has been shown to be increased in patients with perianal Crohn's disease and may reflect disease activity [13, 18].

Résumé. Jusqu'à 90% des patients porteurs d'une maladie de Crohn peuvent développer des lésions péri-anales. Nombre de ces patients n'ont que des symptômes discrets ou sont asymptomatiques et ne nécessitent donc aucun traitement chirurgical. Les manifestations cliniques sont variables et comportent des marisques hypertrophiques, des ulcérations, des abcès et des fistules périnéales, des ulcères du canal anal, des fissures, des indurations et des sténoses. Les abcès péri-anaux et les fistules surviennent souvent simultanément et sont habituellement symptomatiques. Les symptômes comportent: douleurs, écoulements, saignements, incontinence fécale grossière avec des altérations du mode de vie et de l'activité sexuelle. Les investigations et la conduite thérapeutique en cas de Crohn péri-anale ne fait pas l'objet d'un consensus parmi les cliniciens. Ceci est dû en partie à la variabilité à la fois de la fréquence et de la sévérité des attaques et à l'existence de rémission spontanée et d'exacerbation de la maladie anale. Par ailleurs, la détermination de la sévérité de l'affection et de la réponse au traitement est difficile à quantifier de manière objective. Une amélioration dans la qualité de vie est le but du traitement et non pas la guérison de l'affection péri-anale. Les modalités d'investigations de la maladie de Crohn péri-anale se modifient en raison de la limitation des fistulographies conventionnelles, du CT-Scan et de l'évaluation clinique. La résonance magnétique a été introduite récemment mais nécessite toutefois une sonde endo-rectale afin d'obtenir une bonne visualisation anatomique et est actuellement peu disponible. L'ultrasonogra-

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phie endo-rectale a permis de détecter plus d'abcès et de fistules en cas de Crohn que l'examen clinique, la proctosigmoïdoscopie et le CT-Scan et permet, par ailleurs, une meilleure détermination des trajets fistuleux que la fistulographie, ce qui a pu conditionner des changements dans l'attitude thérapeutique des médecins praticiens en charge des malades. La plupart des fistules ne sont pas explorées chirurgicalement et par conséquent l'imagerie des fistules symptomatiques d'une maladie de Crohn a été réduite; les fistules sont habituellement classées seulement en fistule haute et fistule basse. Parks a souligné que cette terminologie des maladies crypto-glandulaires est ambiguë et a, par conséquent, développé une classification plus précise. L'objectif de cette étude est de documenter prospectivement à l'aide de l'ultrasonographie transanale des fistules et des abcès en cas de maladie de Crohn péri-anale symptomatique et de classer ces fistules sur la base de la nomenclature de Parks et de déterminer l'incidence de celle-ci au moment de la prise en charge initiale des patients et lors de poussées ultérieures. L'épaisseur de la paroi anale a été mesurée prospectivement par ultrasonographie; la paroi anale est épaissie en cas de maladie de Crohn et cette épaisseur peut étre un témoin de l'activité de l'affection.

Methods

From July 1992 to Nov 1995 patients with symptomatic perianal Crohn's disease referred for transanorectal ultrasonography to one colorectal surgeon were included. Demographic data and initial clinical assessment prior to ultrasonography were performed and the results entered into a database prospectively. Perianal Crohn's disease was broadly classified into clinically active disease or inactive disease depending on the severity of the symptoms and the external appearance of the perianal area prior to ultrasonography.

Transanorectal ultrasonography was performed with a rotating radial 7 mHz transducer (Bruel & Kjaer, Denmark) protected by a balloon filled with degassed water for the rectum and anorectal junction and a rigid cone for the anal canal. Anal wall thickness (AWT) was measured at the junction of the upper and mid thirds of the anal canal by a previously validated technique [18]. Fistulae and abscesses were classified according to Park's classification [17]. Data were included for repeated examinations on the same patient providing it was a new clinical exacerbation of their perianal Crohn's disease with an intervening remission and there was at least 6 months since the previous ultrasound examination. The changes in the immediate clinical management of the patient after the ultrasound was reviewed by contacting the referring clinician.

Results

Over the 40 months 56 transanorectal ultrasounds were performed in 41 Crohn's patients with symptomatic perianal disease. There were 31 females and 10 males with a median age of 40 years (range 20 – 78 yrs). Severe anal canal ulceration was present in 5 patients and some degree of stenosis in a further 5 patients. This limited the examination to the lower anal canal in only 3 cases. In only 9 (16%) examinations were no fistulae or abscesses seen.

Table 1. Primary management procedure after ultrasound assessment

Needle aspiration	2
Incision and Drainage	7
Long term "Mushroom" drainage abscess	5
Seton loose drainage fistula	3
Mucosal advancement flap	2
Defunctioning stoma	1
Proctectomy	1
Flagyl ± ciprofloxacin	13
No surgery or medical changes to management	22

There were 50 separate fistulae (Fig. 1) identified and 36 abscesses (Fig. 2). Fifty percent (25/50) of all fistulae were intersphincteric (Fig. 3) or transphincteric, although 8 of 10 intersphincteric fistulae had high intersphincteric extensions. Rectovaginal fistulae were identified in 29% of the females examined (9/31). There were 8 suprasphincteric and 8 extrasphincteric fistulae (Fig. 4) and these high complex fistulae were present in 29% (16/56) of all examinations. If the high intersphincteric fistulae are included, over 40% (24/56) of examinations and 48% (24/50) of all fistulae involved the upper half of the anal canal.

Pararectal abscesses were present in 11 examinations and represented almost 30% of all abscesses detected (11/36). In 5 cases the abscess was discrete and in 6 the pararectal abscess was a "dumbbell" shaped extension from the ischiorectal space. Discrete ischiorectal (14) and intersphincteric (10) abscesses were also commonly identified but superficial or perianal abscesses were not commonly seen. This is likely due to a referral bias.

The mean anal wall thickness (AWT) was 20.3 (±3.9) mm. Patients who were identified clinically as active perianal Crohn's had a mean AWT of 22.2 (±3.3) mm compared with 16.4 (±2.2) mm for those who were thought clinically to be inactive (t test = 6.87, 54 df, $P<0.001$).

After 22 of the 56 examinations the treating clinician felt transanal ultrasound did not change their clinical management (39%). Table 1 shows the immediate treatment options chosen by the treating clinicians. Ultrasound guided needle aspiration and drainage was performed in 2 patients. Transanal ultrasound assisted operative procedures were performed for incision and drainage abscesses (7), insertion of a long term "mushroom drain" (5) and insertion of a long term loose "Seton" drain in 3 cases. Thus, 17/56 (30%) examinations were followed by an ultrasound guided surgical intervention. Thirteen patients were commenced on oral antibiotics (metronidazole±ciprofloxacin) as the sole treatment after ultrasonography for active disease not deemed suitable for any surgical intervention. Only 2 of 9 patients had sufficient symptoms solely from the rectovaginal fistulae to warrant a mucosal advancement flap. Two patients with severe chronic perianal disease went on to proctectomy (1) or a defunctioning colostomy (1) as their disease was unresponsive to medical therapy and with no surgically amenable disease detected on ultrasonography.

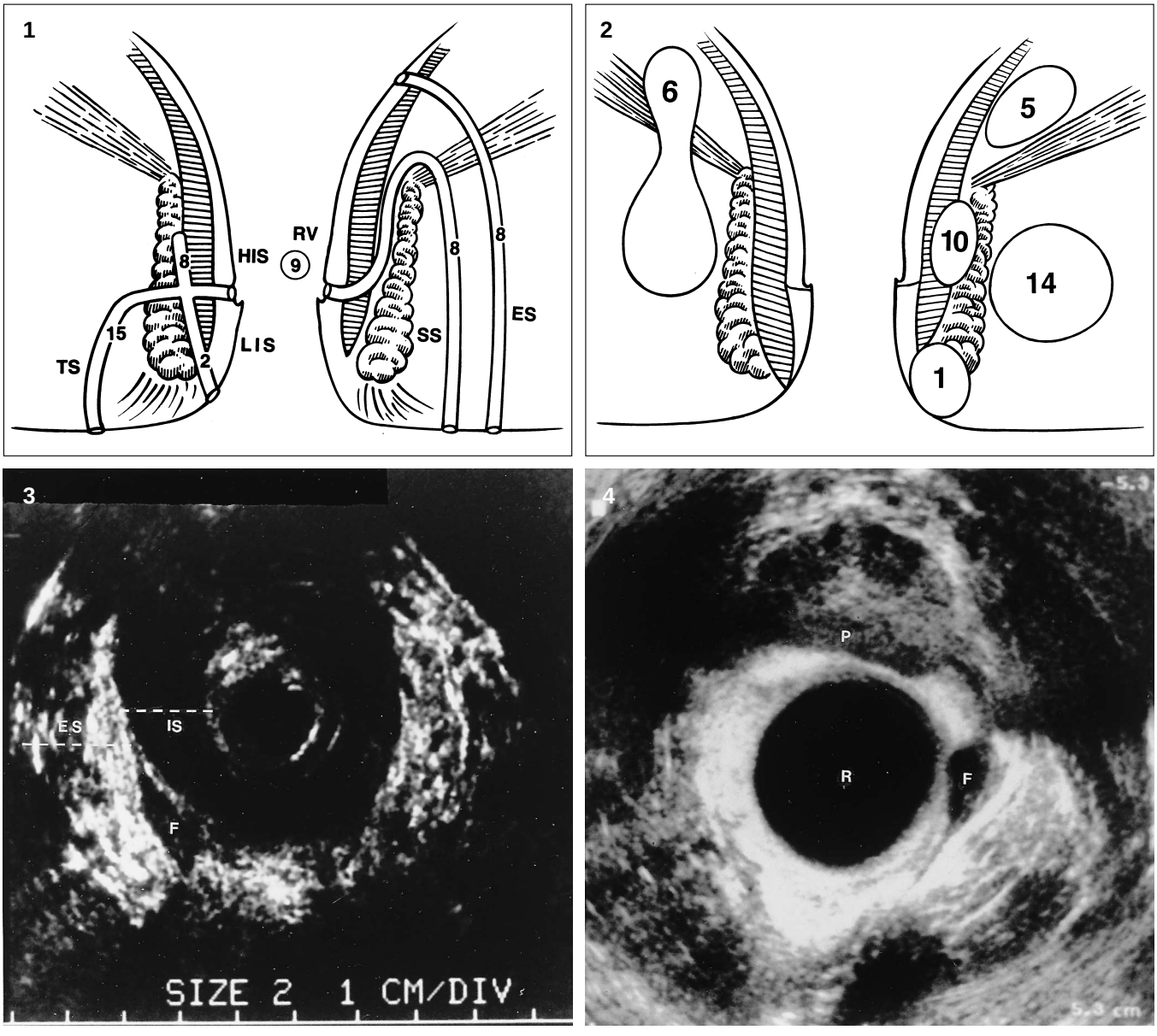

Fig. 1. Incidence and type of fistulae using Park's nomenclature. (*RV*, Rectovaginal; *HIS*, High intersphincteric; *LIS*, Low intersphincteric; *TS*, Transphincteric; *SS*, Suprasphincteric; *ES*, Extrasphincteric)

Fig. 2. Incidence and type of abscess in perianal Crohns disease. (*6*, Combined pararectal with ischiorectal; *5*, pararectal only; *14*, ischiorectal only; *10*, intersphincteric; *1*, perianal)

Fig. 3. Intersphincteric tract with thickened anal wall. (*F*, Fistula tract, *IS*, Internal sphincter, *ES*, External sphincter)

Fig. 4. Extrasphincteric fistulae alongside the rectal wall prior to entering the rectum above the pelvic floor. (*F*, Fistula tract; *R*, rectum; *P*, prostate)

Discussion

Symptomatic perianal Crohn's disease has a high incidence of complex abscesses and fistulae that can be well documented by transanorectal ultrasonography. As expected there appears a much higher incidence of fistulae involving the upper half of the anal canal, rectovaginal fistulae and pararectal abscesses in symptomatic perianal Crohn's disease. Park's reports over 70% of cryptoglandular fistulae are simple transphincteric or intersphincteric [17]. The anal wall thickness in symptomatic Crohn's disease has again been shown to be thicker than the known dimensions of the normal anorectum [18]. Despite the fact that all patients referred had "symptomatic" disease, those patients that were assessed clinically to have active perianal disease had a significantly wider anal wall thickness than those with inactive disease. However, the results were not blinded and this may have influenced the findings (diagnostic suspicion bias) [19].

The aetiology of Crohn's disease remains controversial and its predilection for perianal fistulae and abscesses poorly understood. Parks and Morson have suggested that like the cryptoglandular theory of Chiari in 1878, the possible explanation of this predilection is the increase in lymphoid tissue around the glandular structures in the intersphincteric plane [20, 21]. A previous study has demonstrated that the increased thickness in Crohn's disease is largely found in the mucosa, submucosa and internal sphincter rather than the external sphincter compared with other inflammatory conditions of the perianal region [18]. This would suggest that the aetiology and pathology of transmural inflammation identified in the small and large bowel may also be relevant in perianal Crohn's disease.

Treatment of symptomatic perianal disease includes both medical and surgical modalities. Surgery has usually been limited to laying open low intersphincteric fistula and drainage of abscesses. The recent trend in surgery has been to be more aggressive in the management of abscesses and fistula than was previously recommended [22]. This includes long term drainage with loop Ethibond catheters, Penrose, Mushroom and Seton stitch drainage as well as fistulotomy [22–24]. More aggressive surgery may, however, result in damage to the anal sphincter and unacceptable incontinence. Severe unremitting disease can in extremes be improved by defunctioning stomas or abdominoperineal excision [25]. This obviously requires either temporary or permanent stomas and thus has a limited role. Transanorectal ultrasound may offer a therapeutic guide to the surgical drainage of abscesses, identification of complex fistula tracts and assess potential and past surgical damage to the external sphincter.

Medical therapies have been tried in perianal disease with limited success. Only 6-mercaptopurine, metronidazole and ciprofloxacin have shown any effectiveness in small uncontrolled trials [26–34]. The clinical assessment of response to therapy has been extremely subjective in the past and has questioned the validity of these uncontrolled studies. If anal wall thickness is a marker of the activity of perianal Crohn's disease then response to therapy may be more objectively determined by transanorectal ultrasound measurements. It is, however, as yet unproven whether a clinical improvement in Crohn's disease is mirrored by a decrease in transmural inflammation and thickening in any gastrointestinal site.

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