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PREOPERATIVE DIAGNOSIS OF ANAL FISTULA: MRI+DRE OR DRE ALONE?

General Surgery

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ABSTRACT

The last word in anal fistula surgery has not been written. The literature is unclear on which patient should undergo a preoperative magnetic resonance imaging [MRI]. Most guidelines are clear that complex and recurrent fistulae, or those with a background of inflammatory bowel disease, should undergo an MRI evaluation, but otherwise the guidelines are hazy and ill defined.

In this study, over a 06-month period from May 2019 to October 2019, all patients who clinically presented with anal fistula underwent MRI of the a no rectal region. The clinical findings on digital rectal examination [DRE] were compared to the final radiological diagnosis, and the peri-operative findings. The fidelity of the MRI diagnosis was the endpoint of the analysis, as was the impact on the operative strategy. A change in operative course was brought about by the MRI, in a percentage of 16.1% which is quite significant. None of the patients had an endo-anal ultrasound as it is not part of our protocol.

It is concluded that the addition of the MRI changed the surgical approach in a significant proportion of patients with fistula in ano and consequently it is now part of our regular workup of every anal fistula patient, to do an MRI preoperatively. By adding MRI, our recurrence rates came down significantly which is quite evident in the follow-up.

KEYWORDS

Anal fistula. DRE.MRI. Endo anal ultrasound

INTRODUCTION

The change brought about by an MRI before fistula surgery was studied. The clinical diagnosis [DRE] was compared with the MRI diagnosis, in these patients who presented with persistent peri-anal sepsis. Although this investigation is currently done only for complex cases, with increasing availability, it may be worth doing this test for every fistula in a no.

Forty-three consecutive all comers were taken up for pre-surgical MRI and the images were compared to the pre-operative DRE findings and the operative findings.

MATERIALS AND METHODS

Forty-three patients underwent thorough clinical evaluation with detailed history analysis and DRE for fistula in a no. They then underwent MRI fistulography and subsequent surgery. The intra operative findings, the correlation with the MRI findings, and the resultant change of operative strategy were all analysed.

Of these 43 patients, DRE revealed one patient with Grade V [supralevator extension], (fig 1) and 3 with Grade III [Horseshoe extension]. However, after the MRI study, three patients were found to have Grade V.

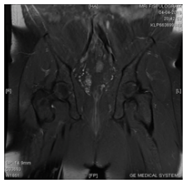

Fig. 1 Grade V. Supralevator fistula in a no

Five patients had Grade III [Horseshoe track], and three patients had an extra side branch of the track [Grade II/III] [Fig. 2].

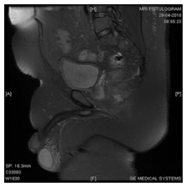

Fig. 2 Grade II. Complex Inter sphincteric Fistula in Ano

The rest were clinically diagnosed as simple fistulae [Grade I and II] [Fig. 3].

Fig. 3 Grade I. Simple Linear Inter sphincteric Fistula in Ano

RESULTS

Overall, the difference between MRI and DRE was madeout in these three groups of patients: those withsupralevator extensions [Grade V], horseshoe tracks, andextra side branch tracks [Grade III-Trans-sphincteric],three, five, and three respectively.

Table 1 St James's University Hospital MR imaging classification of peri-anal fistulae

Grade	Description
0	Normal appearance
I	Simple linear intersphincteric fistula
II	Intersphincteric fistula with intersphincteric abscess or secondary fistulous track
III	Trans-sphincteric fistula
IV	Trans-sphincteric fistula with abscess or secondary track within the ischio-anal or ischiorectal fossa
V	Supralevator and translevator disease

This made an operative decision- making change in 7 /43 patients, working out to16% in this study [Tables 2, 3, and 4].

Table 2 Total study findings

S.no	GRADES	DRE	MRI	Surgery
1	Grade I andII	39	32	32
2	Grade II andIV	3	8	8
3	Grade III	1	3	3
4	All	43	43	43

Table 3 Comparison between DRE and surgery

DRE	Pre-op (surgery)	
	3, 4, 5	1,2

3, 4, 5	4	0
1, 2	7	32

Sensitivity (DRE) 36%
Specificity (DRE) 100%

Table 4 Comparison between MRI and surgery

MRI	Pre-op (surgery)	
	3, 4, 5	1,2
3, 4, 5	11	0
1, 2	0	32

Sensitivity (DRE) 100%
Specificity (DRE) 100%

DISCUSSION

The crypto glandular theory for the pathogenesis of anal fistulae postulated by Parks has stood the test of time. The operative management of fistula in ano continues to be a mystery. Knowledge of the anatomy of the fistulous tract is pivotal to surgical planning. Avoidance of the sphincter complex, to prevent incontinence, is crucial, whilst clearing out the fistulous tracts as completely as possible.

MR imaging took the centre stage in the diagnosis of complex anal fistulae decades ago. It is guiding innumerable surgeons to sail safely through the complexities of anal fistulae since ages. Despite this, most surgeons are reluctant to do MRI before planning fistula surgery.

Is an MRI done routinely before every fistula surgery an overkill? Is the proverbial hammer looking at every suppurating anus as a nail?

Although a few studies have addressed this issue, the weighting of these studies has not been powered enough for the differences to achieve statistical significance. A few randomised controlled studies, with numbers of less than a hundred, are available. Either a 1.5 T, as in our study, or a 3 T, which is also locally available, could be used. T2 and T1 weighted sequences are indispensable to reveal fluid in the tracts and associated abscesses. The sphincter complex needs to be well assessed in the sections, as well as the presence of rogue tracks, and extra branches from the intersphincteric space. The presence of an extension into is chio rectal fossae from the intersphincteric plane is another important end point.

The MRI provides a 3D road map to understand the exact anatomy of the fistula complex. Undoubtedly, for (Fig. 1) recurrent fistulas, and for patients with complicated diverticular disease or Crohn's, MRI imaging is mandatory [pre-operative MRI reduces further recurrence by 75% in recurrent fistula in ano]. MR imaging has revolutionised the management of complex peri-anal fistulae thanks to its excellent illustration of ano rectal anatomy to the operating surgeons. MR imaging shows not only the anorectal sphincter mechanism but also the relationship to the pelvic diaphragm and ischiorectal fossae.

We deploy St James's University Hospital MR imaging classification for the pre-operative assessment of perianal fistulae.

This classification system exerts a significant impact on the management of peri-anal fistulae and long-term clinical outcome, and the grading employs anorectal anatomic discriminators identifiable on axial and coronal MR images. If the disease is confined to intersphincteric region, [Grade 1 and 2] simple surgical management gives excellent cure rates. If the track is within the ischiorectal fossa, it is typically trans-sphincteric fistula [grade 3and 4] and the patient needs repetitive set on procedure or anal advancement to facilitate healing and to prevent recurrence. Sometimes, faecal diversion [sigmoid colostomy] may help to circumvent this situation. If a translevator fistula [Grade V] is diagnosed, septic foci in the pelvis are eliminated.

This study was done to assess how well MR imaging augments the pre surgical DRE for patients presenting with primary anal fistulas, and to document possible change brought about in strategy by its deployment. So we can quantify the difference between MR imaging and DRE which is confirmed at the time of surgery.

Even in this group of primary, apparently uncomplicated fistulas, 7 patients had findings not picked up by the DRE. Although 32/43 patients had single branch fistulas, 11 had more findings, predicted clinically only in 4. The sensitivity of the MRI was therefore 100%. The specificity was 100%. On the other hand, the sensitivity of clinical examination was 36%. And the specificity was 100%. Avoiding sphincter complex damage, while removing all the tracks, is the central principle of fistula surgery.

Trans-sphincteric tracks are associated with a higher rate of recurrence, and supralevator tracks with recurrence and possible incontinence from levator ani muscle damage.

If the MRI could give us more information on the same, in the pursuit of the holy grail of nil recurrence with nil incontinence, then it should be grasped as a diagnostic modality that offers completeness of excision, combined with a high degree of safety and precision as well. The same could possibly be obtained by endo anal ultrasound, but it is less easily available, is twice as expensive in our city, and is very operator dependent. Many studies show that MR fistulography is superior to endo anal ultrasound as well.

CONCLUSION

In this prospective study of 43 patients presenting with perianalsuppuration, MRI findings are completely matching tothe per operative findings and the pre-operative MRI gavemore information in 7 more patients, altering intraoperativedecision making in these 16%of patients. It is found out in ourfollow up that recurrence rates are very low in patients whohad pre-operative MRI since no additional tracks are missed.

Moreover, DRE has a disadvantage in obese patients as well as it has subjective discrimation.

Although RCTs are needed, it seems advisable, to the discerning surgeon, to supplement digital rectal examination with an MRI to throw light on to a dark place. Our study clearly reiterates the superiority of MRI over DRE in the preoperative assessment of fistula in ano. MR imaging has definitely to be added in the surgeon's armamentarium in the management of all peri-anal fistulae.

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