Role of MRI Fistulography with Gadopentate Enhancement in Assessment of Complex Anal Fistulas

Presented by

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Introduction

- Fistula-in-ano (FIA) is a common anorectal disorder.
- Radiological investigations include: Fistulography, endorectal ultrasonography (ERUS), and magnetic resonance imaging (MRI).
- MRI is an accurate diagnostic tool for the assessment of Anal fistula.***(Ziech et al ., 2009)***

- MRI has been shown to reduce recurrent disease and, therefore reoperation rates. It does not only help demonstrate the disease extension accurately, but also serves to predict prognosis and make surgical decisions.(***Horsthuis et al ., 2009).***

Aim of the work

- The aim of the present study was to assess the concordance between MRI fistulography with intravenous Gadopentate enhancement and the intraoperative surgical finding.

Patient and Methods

- Ninety five patients with complex cryptoglandular anal fistula were included in this study.
- Complex anal fistulas included high trans-sphincteric, horse-shoe, recurrent, multiple branching and high fistulas with supralevator extension.

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- All patients were examined by pelvic MRI before and after Gadopentat intravenous injection (0.5 mL/kg)

Anal fistula was classified according to St James University hospital MRI based grading system *(Morris et al .,2000)* into:

- 0, normal appearance
- 1, simple linear intersphincteric fistula;
- 2, intersphincteric fistula with intersphincteric abscess or secondary track;
- 3, trans-sphincteric fistula;
- 4, trans-sphincteric fistula with abscess or secondary track within the ischioanal or ischiorectal fossa;
- 5, supralevator and translevator disease

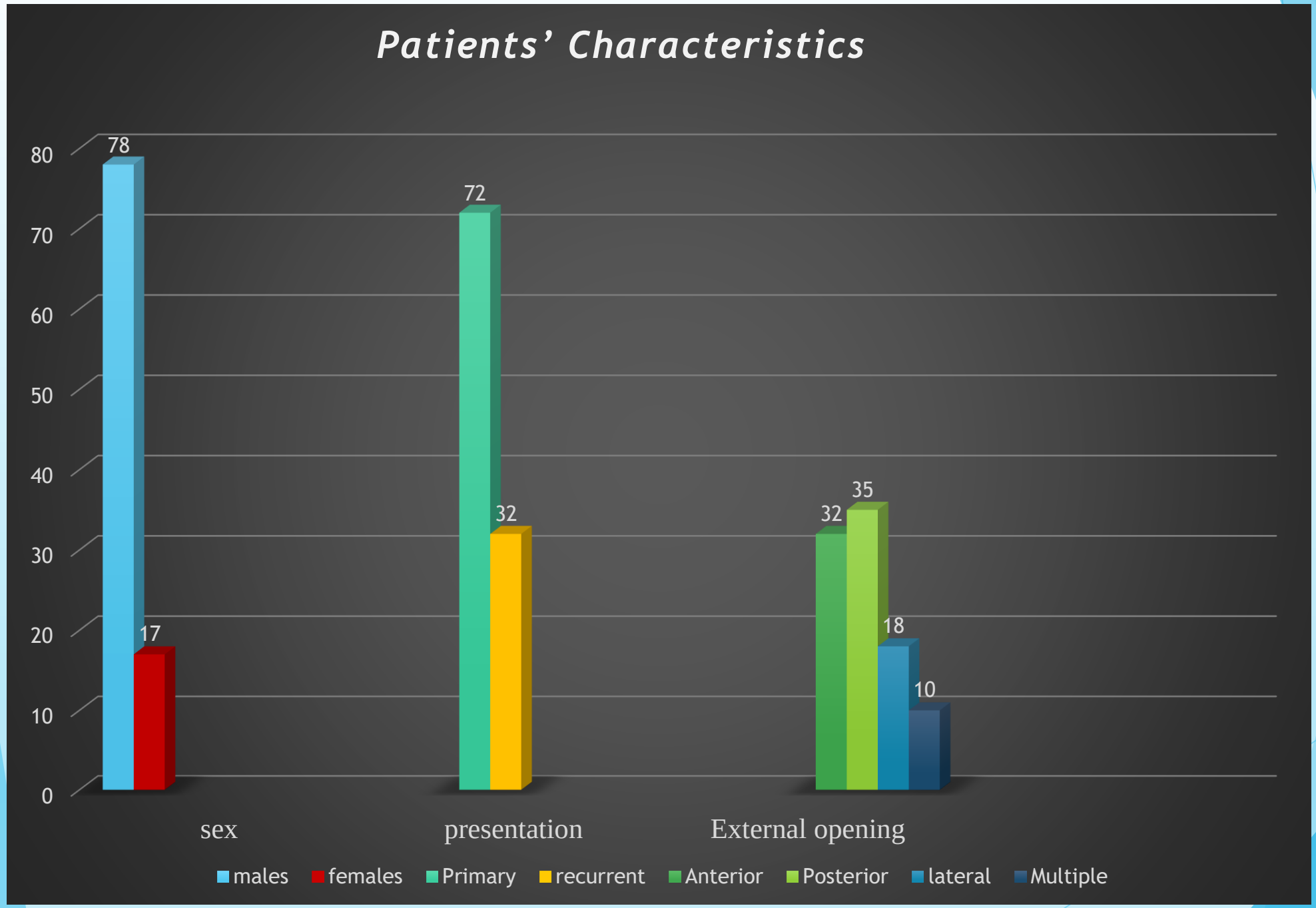
Surgery

- During surgery ,The site of fistula tracks, external and internal openings, and horseshoe or other secondary extensions of the primary tract as well as the presence and location of any abscess were recorded.
- The intraoperative findings were compared with those of preoperative MRI fistulography.

Statistical analysis

- The concordance between MRI fistulography (index test) and EUA (reference standard) regarding the position of internal opening, position of primary tract, and presence of secondary extensions was assessed using Cohen's kappa coefficient (k).
- Agreement between ERUS and EUA according to kappa was classified as perfect (k=1), very good (k=0.81–0.99); good (k=0.61–0.80), moderate (k=0.41–0.60), fair (k=0.21–0.40), and poor (k=0.20 or less)***(Ratto et al ., 2005)***

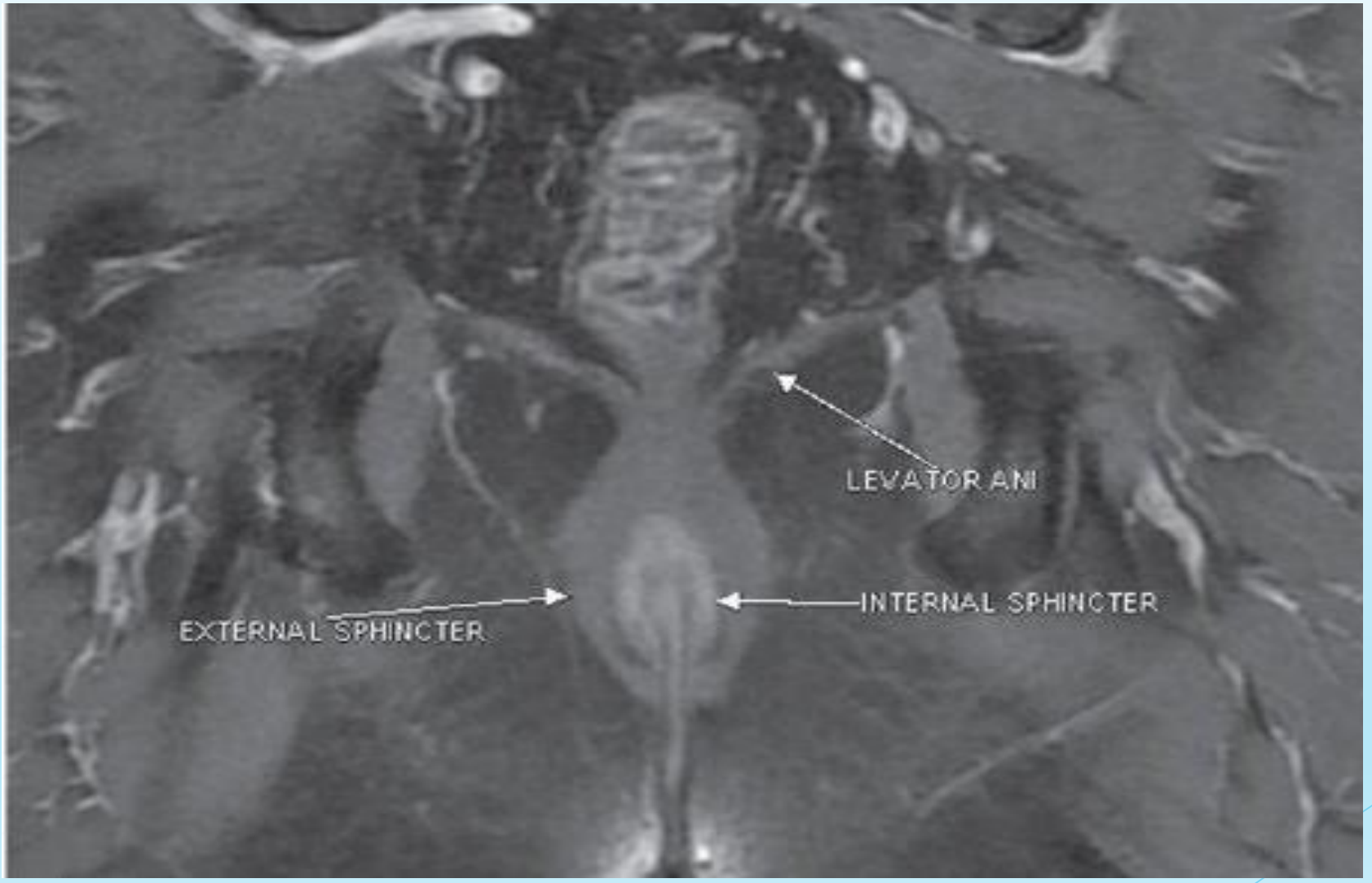
Results


Patients' Characteristics
80
70
60
50
40
30
20
10
0
78
17
72
32
32
35
18
10
sex
presentation
External opening
males
females
Primary
recurrent
Anterior
Posterior
lateral
Multiple

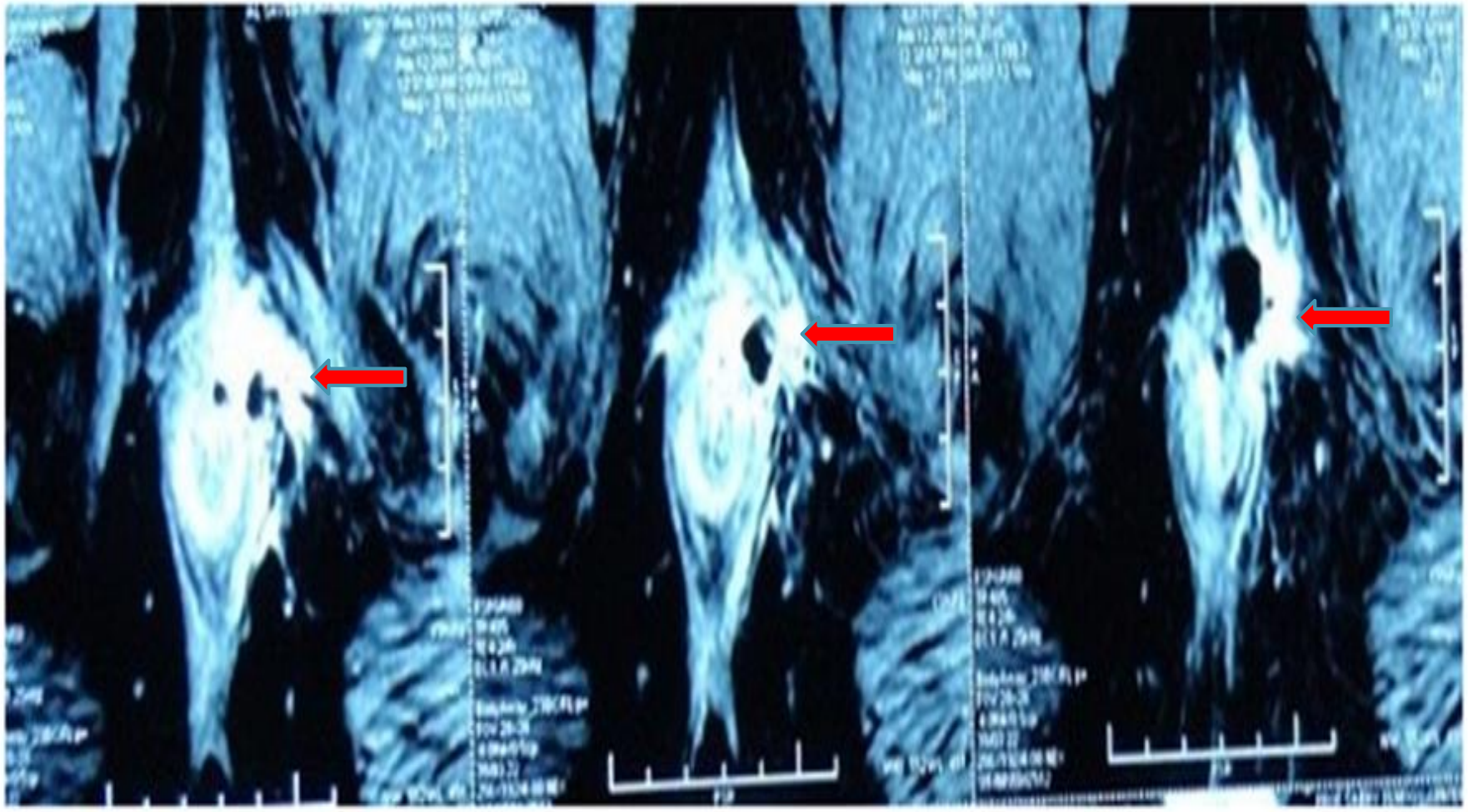
Summary of the accuracy, sensitivity, and concordance of MRI fistulography with intraoperative surgical findings

Variable	Accuracy (%)	Sensitivity (%)	Concordance
Site of internal opening	89.4	91.4	0.847 (95% CI: 0.75- 0.94)
Number of tracks	96.8	100	0.937 (95%CI: 0.86- 1)
Position of primary tract	96.8	100	0.908 (95%CI: 0.806- 1)
Presence of secondary tracts	98	97	0.953 (95%CI: 0.89- 1)
Presence of abscess cavity	98	100	0.957 (95%CI: 0.91- 1)

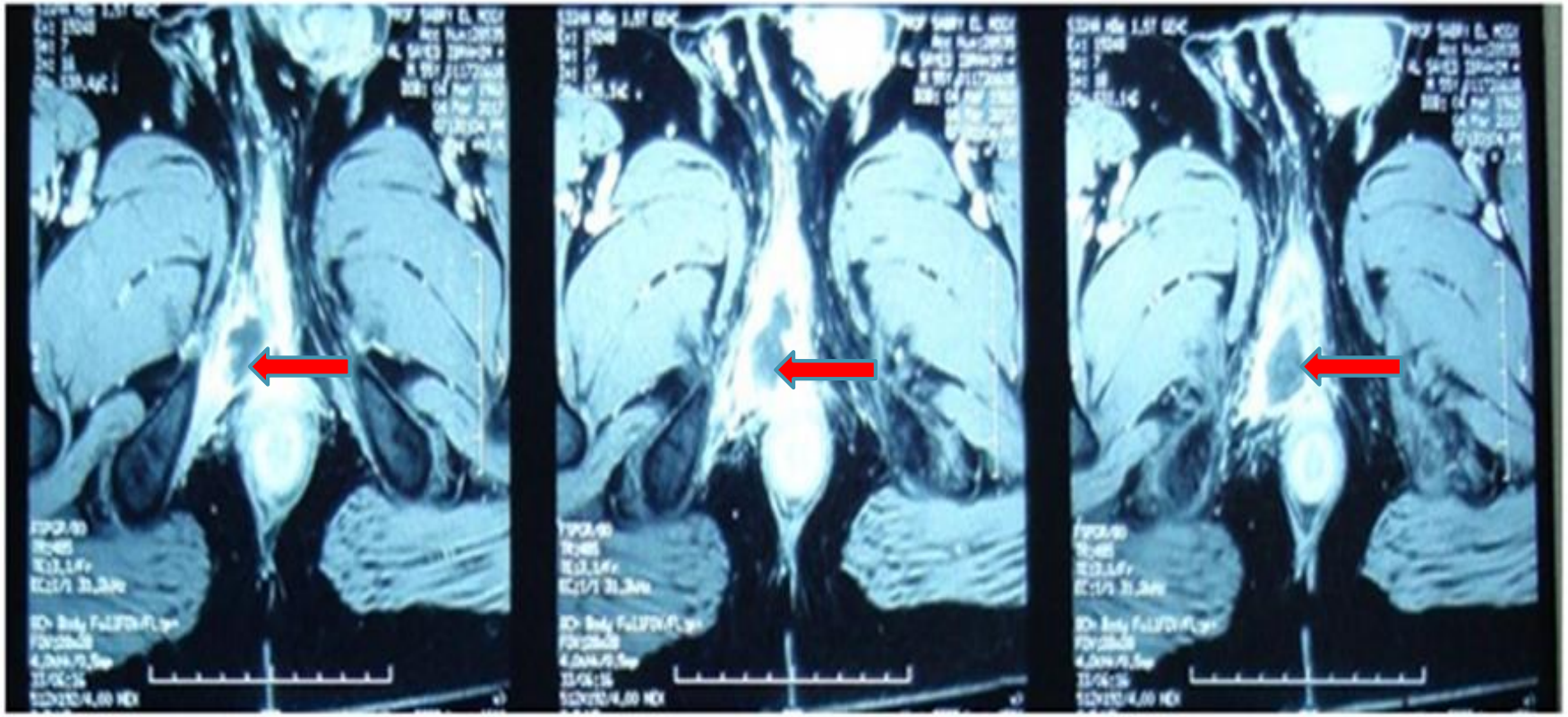
Normal MRI Pelvis



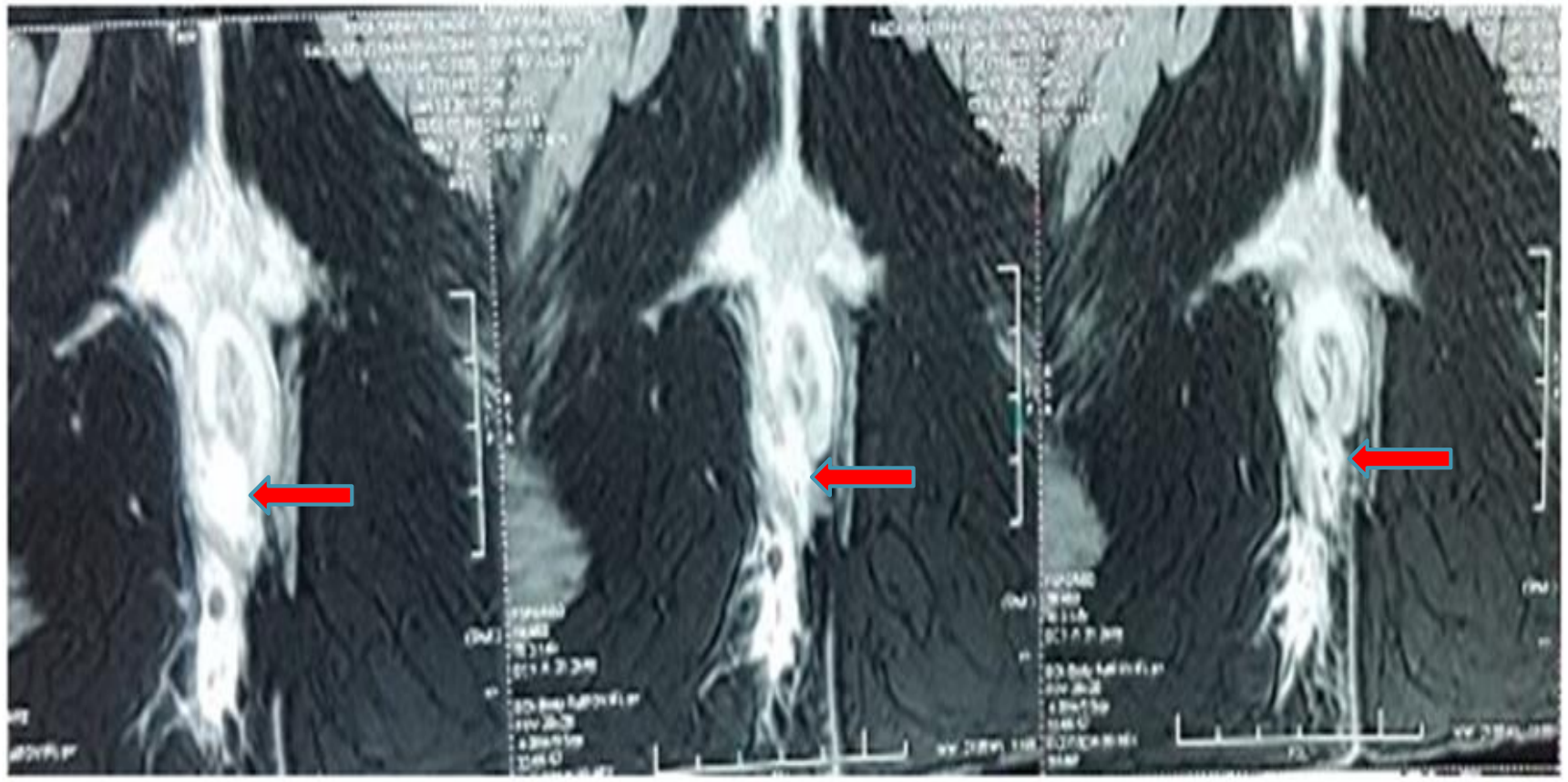
MRI fistulography (with intravenous gadopentate)showing trans-sphincteric anal fistula



MRI fistulography (with intravenous gadopentate)showing trans-sphincteric anal fistula associated with abscess cavity



MRI fistulography (with intravenous gadopentate)showing Inter-sphincteric anal fistula



Outcome of Fistula Surgery

- Fistula recurrence was recorded in four (4.2%) patients after removal of seton. Minor FI was noted in 14 (14.7%) patients with median Wexner score of 3 (range, 2-6).

Conclusion

- MRI fistulography is an effective diagnostic modality for the preoperative assessment of anal fistulas.
- MRI had excellent accuracy and sensitivity in detection of the internal opening, primary tract, and secondary extensions of anal fistula with very good concordance with the intraoperative findings on EUA.
- The prognostic value of MRI fistulography in decreasing the recurrence and incontinence rates has to be verified in further prospective studies.

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Role of MRI Fistulography with Gadopentate Enhancement in Assessment of Complex Anal Fistulas and Improving Surgical Outcomes

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Thank
you!