Research Article

MRI Guided Surgery in Perianal Fistua

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Abstract
Aim: To evaluate the effectiveness of MRI diagnosis in preventing recurrence after perianal surgery. Patients and methods: This prospective study included consecutive patients with perianal fistula that were admitted to The Department of General Surgery, Minia University Hospital between January to May ٢٠١٥. **Results:** ٢٥ cases with perianal fistula ٨ patients were females (٣٢٪) and ١٧ patients were males (٦٨٪). The youngest patient included in our study was ١٨ years of age and the oldest was ٦٦ years of age with mean ٣٩.٥±١٠.٤ years. ٧٦٪ of our patient had low anal fistula and ٢٤٪ had high anal fistula.patients with single tract (٥٢٪) were presented more than patients with secondary tracks (٤٨٪).٨٨٪ of anal fistula had active tract and ١٢٪ had fibrotic and active tracts.the internal opening was successfully depicted by STIR and T٢WI in ٩٢ % and ١٠٠ % respectively.the tract of anal fistulas was clearly detected in T٢ and STIR sequences ٩٥ % & ٩٦٪ respectively. But in T١WI the tract detected in ٨٤٪ of the studied patients.T٢WI and STIR were the best sequences to detect the side branches.axial plane was the best plane to assess the internal opening (١٠٠٪) and the course of the fistula (١٠٠٪).coronal plane had significant role in drawing the fistulas tract (٨٨٪), on the other hand the sagital plane had a very limited role in assessment of anatomical landmark for anal fistula (internal opening (٠٪) and tract (٤٪).the data of the operated patients were well matched with MRI findings with sensitivity equal to ١٠٠٪. **Conclusion:** MRI is the modality of choice in preoperative assessment of anal fistula. It helps the surgeon in detection the pathway of fistulaous tract and its relation to anal sphincter complex. It also detects the site of internal opening identical with the surgical position in addition it illustrates if the fistula is high or low thus preventing recurrence
Key words: MRI, Perianal, Fistula

Introduction
Fistula is defined as any abnormal tract seen connecting two epithelial surfaces in the body, thus perianal fistula is defined as an abnormal connection between the epithelial lining of the anal canal and the skin over the perineum. Anal canal is a muscular tube having sphincteric complex and surrounding spaces that are crucial for image interpretation. The anal canal starts at the levator plate as a continuation of the rectum and extending caudally to the anal verge surrounded by the internal and external anal sphincters that are responsible for involuntary and voluntary control respectively, so injury to the external sphincter during surgery can lead to fecal incontinence. Both sphincters are separated by the intersphincteric space.[١]

The anal fistula causes significant morbidity. It affects mainly young males with a male-to-female ratio ٢:١. The main presentation of the anal fistula is discharge from its external opening; however the local pain is a common symptom. Obstruction and infection of the anal glands are the main pathological explanation for anal fistula formation (cryptoglandular theory). The Infection found its way through a tract in perianal spaces to pierce the skin forming various types of anal fistula according to its route. Initial classification of perianal fistulas was based on surgical anatomy

described by[٢], who classified it according to its primary tract (the tract between the external and internal openings) into intersphincteric, transsphincteric, suprasphincteric and extrasphincteric types.[٢]

Then it was modified on the basis of the anatomy of pelvic MRI which is known as the **St. James' University Hospital** into grades from I-V according the anatomy of the tract and associated complication.[٣] Surgery is considered as the cornerstone of anal fistula treatment but it has a significant prevalence of recurrence.[١] Successful surgical management needs distinct preoperative assessment of the course of the primary fistulous track and the sites of any secondary extension or abscesses.[٤]

Fistulography is one of the most common method that used broadly but Injection of contrast material through the skin opening has limited role in assessing secondary extensions owing to lack of proper filling with contrast material and has no role in visualization of the anal sphincters.[٥] Computed tomography (CT) with rectal and intravenous contrast material is another method which can be used to analyze anal fistulas particularly those in the rectal area. It is also useful for the evaluation of perirectal inflammatory disease and suspected perirectal abscesses. Computed tomography usually fails to define subtle fistulas and abscesses owing to poor resolution of soft tissue.[٦] Analsonography is the first imaging technique used to describe the anatomy of the anal canal and anal sphincters in details. This technique provides excellent imaging of the rectal wall, anal sphincter and internal opening. In addition it is rapid and well tolerated by patients.[٥] MRI study is considered as the most descriptive imaging modality for perianal fistula compared to other imaging modalities for two reasons; the first, it allows identify the infected tracks and abscesses that would remain undetected. The second, it makes the radiologist able to provide detailed anatomic descriptions of the relationship between the fistula and the anal sphincter complex helping surgeons to choose the best surgical treatment and significantly reducing recurrence as well as the postoperative complications like fecal incontinence.[١]

Patients and Methods

This prospective study included consecutive patients with perianal fistula that were admitted to The Department of General Surgery, Minia University Hospital in period between January to May ٢٠١٥.Written informed consent was given from all included patients.

Patients were subjected to complete clinical and laboratory investigations. All patients were diagnosed by the use ofMagnetic resonance imaging with the superficial body coil. All the included patients were subjected for surgery after proper preoperative chemical colon preparation and previous night enema. Intraoperative identification of the internal fistula opening according to preoperative MRI results was done with great care and compared clinical, radiological and intraoperative findings. Patients were discharged from hospital after one day and postoperative open wound care and antibiotic covering gram negative and anaerobes was administered for ten days. Only fluids by mouth was allowed for the first three days and semisolids for another four days before normal diet allowed. Follow-up evaluation included clinical assessment for recurrence at ١, ٣and ٦ months.

Results

This study was conducted in Minia University Hospital from January to September ٢٠١٥. The age of patients ranged from ١٨-٦٦ (٣٩.٥±١٠.٤). Anal fistula was common in males who represented about ٦٨٪ of our patients while females only represented ١٧٪. ٧٢٪ of our patient presented with anal fistula for the first time while ٢٨٪ of them had recurrent anal fistula.

Table ١ illustrates that most of anal fistulas in our patients were due to idiopathic cause about ٩٢٪. One of our patients had a

previous history of inflammatory bowel disease and another one developed anal fistula as a late complication of episiotomy. Table ٢ explains the types of anal fistula according to Park's classification; the intersphincteric and transsphincteric fistulas were the most common types representing ٥٢٪ and ٤٠٪ of our patients respectively. On the other hand supra-sphincteric and extra-sphincteric fistulas were the least types.

Table ٣ shows Classification of the anal fistula from surgical view in to low (below dentate line) and high fistula (above dentate line). ٧٦٪ of our patient had low anal fistula and ٢٤٪ of our patients had high fistula.

Table ٤ shows the subdivision of high anal fistula into two types above and below anorectal ring. ٦٦.٧٪ of them were below the levator plate and ٣٣.٣ % were above the levator plate.

Table ٥ shows that ٥٢ % of our patient had single primary tract and ٤٨٪ of our patients represented by secondary tracts.

Table ٦ demonstrates the activity of perianal fistula, it was found that ٨٨٪ of anal fistula in the studied patients had active tracts (fluid content), ١٢٪ had mixed tracts (fibrotic and active tracts) and no patients in our study were recorded to have only fibrotic tracts (healed).

Table ٧ shows the complications of anal fistula. ٤٤٪ of our patients were complicated by abscess formation and ١٢٪ had a horseshoe component.

Table ٨ shows that the most common site of external openings were to the left of anal verge (٤٨٪) and to the right of anal verge (٤٤%).

Table ٩ shows the number of the external opening of the anal fistula. It was either solitary opening (accounting for ٩٢٪) or multiple opening (accounting for ٨٪ in our patients).

Table ١٠ shows that MRI detected the internal opening in ١٠٠٪ of the patients, but digital rectal examination could not detect it except in ٤٠ % of our patients.

Table ١١ shows that T٢WI and STIR were the best sequences in assessment of the internal opening of the anal fistula (١٠٠٪ and ٩٢٪ respectively). Also, T٢WI and STIR were the best sequences in assessment of the tract of the anal fistula (٩٦٪ in both). T١WI detected the tract in about ٨٤٪.

Table١٢ shows that axial plane was the best plane to assess the internal opening (١٠٠٪) while Coronal plane had a limited role in detection of the internal opening. Also, axial and coronal planes were the best planes to assess the tract. The tracts were identified in (١٠٠٪) and ٨٨ % of our patient respectively. On the other hand the sagittal plane had very limited role with significant statistical difference with axial and coronal planes. The operative data of the operated patients were well matched with MRI findings and the sensitivity equal to ١٠٠٪. Follow up showed no recurrence.

Table ١: Causes of the anal fistula in our patients

Causes of anal fistula	N = ٢٥	
	N	%
Idiopathic	٢٣	٩٢
Iatrogenic	١	٤
Inflammatory bowel disease	١	٤

Table ٢: Classification of anal fistula in our patients:

Classification of perianal fistula	N = ٢٥	
	N	%
Inter-sphincteric	١٣	٥٢
Trans-sphincteric	١٠	٤٠
Supra-sphincteric	١	٤
Extra-sphincteric	١	٤

Table ٣: Incidence of low and high anal fistula in our patients:

Classification of anal fistula surgically	N = ٢٥	
	N	%
Low	١٩	٧٦
High	٦	٢٤

Table ٤: Classification of high anal fistula in our patients:

Classification of high type of anal fistula	N = ٦	
	N	%
Below levator-anii	٤	٦٦.٧
Above levator-anii	٢	٣٣.٣

Table ٥: Incidence of secondary branches in our patients:

Incidence of secondary branches	N = ٢٥	
	N	%
Single primary tract	١٣	٥٢
Side branches	١٢	٤٨

Table ٦: Activity of anal fistula in our patients:

Activity of anal fistula	N = ٢٥	
	N	%
Active tract	٢٢	٨٨
Mixed	٣	١٢
Fibrotic	٠	٠

Table ٧: Complications of anal fistula in our patients:

	N=٢٥	
	N	%
Abscess		
• **Yes**	١١	٤٤
• **No**	١٤	٥٦
Horse shoe component		
• **Yes**	٣	١٢
• **No**	٢٢	٨٨

Table ٨: Sites of external openings of the anal fistula in our patient

Sites of external openings of the anal fistula	N = ٢٥	
	N	%
Right to anal verge	١١	٤٤
Left to anal verge	١٢	٤٨
Bilateral	١	٤

Perineum	١	٤

Table ٩: Number of external openings of anal fistula in our patients

Number of external openings of anal fistula	**N = ٢٥**	
	N	**%**
Solitary	٢٣	٩٢
Multiple	٢	٨

Table ١٠: Comparison between assessment of the internal opening by MRI and digital rectal examination:

N = ٢٥			
Internal opening	**MRI examination**	**Digital rectal examination**	**P***
Detected	٢٥(١٠٠٪)	١٠(٤٠٪)	<٠.٠٠٠١
Not detected	٠(٠٪)	١٥(٦٠٪)	

***p value < ٠.٠٥ is considered significant.**

Table ١١: Comparison between different MRI sequences in assessment of the internal opening and the tract of anal **fistula**:

Internal opening	**T١WI**	**T٢WI**	**STIR**	**P***
Detected	٠(٠٪)	٢٥(١٠٠٪)	٢٣(٩٢٪)	<٠.٠٠٠١
Not detected	٢٥(١٠٠٪)	٠(٠٪)	٢(٨٪)	
Tract of anal fistula				
Detected	٢١ (٨٤٪)	٢٤ (٩٦٪)	٢٤ (٩٦٪)	٠.٢
Not detected	٤ (١٦٪)	١ (٤٪)	١ (٤٪)	

Table ١٢: Comparison between different MRI planes in assessment of the internal opening and the tract of anal fistula:

N = ٢٥				
Assessment of internal opening	**Axial**	**Coronal**	**Sagittal**	**P***
Detected	٢٥(١٠٠٪)	٧ (٢٥٪)	٠(٠٪)	<٠.٠٠٠١
Not detected	٠(٠٪)	١٨ (٧٢٪)	٢٥(١٠٠٪)	
Assessment of tract of anal fistula				
Detected	٢٥(١٠٠٪)	٢٢ (٨٨٪)	١ (٤٪)	<٠.٠٠٠١
Not detected	٠(٠٪)	٣ (١٢٪)	٢٤(٩٦٪)	

Discussion

Anal fistula is a relatively common problem and defined as chronic inflammation of perianal tissues with a connection between the skin of the perineum and the anal canal[٧]. The anal canal is ٢.٥–٤ cm long. The dentate line (histological junction between anal squamous epithelium and rectal columnar epithelium) runs underneath the anal valves[٨].

Accurate anatomical mapping of fistulas, perianal suppuration, secondary extensions and relationship to the pelvic floor, sphincters and adjacent peri-rectal structures are of paramount importance for treatment decisions and surgery planning[٩,١٠]. Therefore accurate preoperative assessment of the perianal fistulous tract is the main target of the preoperative assessment aiming to eliminate the infection while preserving anal continence as well as reduction of the incidence of recurrence with determination of the surgery efficiency[٥,٧].

Occasionally the accurate location of the internal opening can be difficult to recognize due to difficult anatomical conditions as it is usually narrow, small or intermittently closed. Many failures of surgical treatment are correlated to inadequate recognition of the fistula course or failure in finding all of the branches or internal orifices[٧]. Therefore, it is necessary to identify the level and exact site of the internal opening. Magnetic resonance image guided surgery helps to reduce postoperative recurrence by ٧٥٪ in patients with complex disease[٣].

Magnetic resonance imaging with the superficial body coil show excellent results in showing rectum, perianal region, internal, external anal sphincter, levatorani, ischiorectal and ischioanal region[١١]. In the evaluation of anal fistulae it is very important to describe the relationship between fistula and the sphincteric complex in the coronal plane. It is equally important to describe the primary fistulous passage as well as the secondary ramification and possible associated abscess due to axial images[١٢].

In our study; out of ٢٥ cases with perianal fistula ٨ patients were females (٣٢%) and ١٧ patients were males (٦٨٪). The youngest patient included in our study was ١٨ years

of age and the oldest was ٦٦ years of age with mean ٣٩.٥±١٠.٤ years**.** This agrees with Halligan and Stoker who stated that the disease predominantly strikes young adults and men are more commonly affected[٥].

Our MRI examinations were performed with body coils as it has many advantages compared to endorectal coil; It is minimally invasive, painless, financially bearable, no special patient preparation and provide excellent anatomic details of the anal sphincters and the anatomic boundaries of the pelvis. Phased array external coils have larger field of view with good coverage for supralevator fistulae. This agree with Darwish et al., ٢٠١٣; Mazroa et al., ٢٠١٢; Daabis et al., ٢٠١٣ and Mohamed and Abo-Sheisha, ٢٠١٤ who used body coils in their studies of perianal fistulas.[١٣,٨,١٤,١٥]

In a study done by Al-Khawaria et al. and Van Koperen et al., who compared endoanal MRI with body coil MRI, they found a surgical concordance rate of ٦٨٪ for endoanal MRI as compared to ٩٦٪ for body coil because endoluminal coils are susceptible to motion artifact, has limited field of view (about ٢–٣cm from the coil) missing distant extensions and sometimes difficult to place owing to anal stenosis or local pain as a result of extensive infection.[١٦,٤].

Hutan et al., studied role of MRI in assessment of anal fistula comparing endoanal coil and external coil and found that endoanal coil had better outcome and provided an advantage in identifying internal openings but with higher costs because endoanal coil was for single use[١٧,١٨]**.**

An important advantage of MR imaging in fistula evaluation is the ability to study the anal sphincter complex in any surgically relevant plane. For this reason, it is critical that imaging planes are correctly aligned with respect to the anal canal. The anal canal is tilted forward from the vertical by approximately ٤٥° in the sagittal plane, thus straight axial and coronal images will not allow correct evaluation of the course of the fistulous tract. To achieve the correct orientation a sagittal fast spin-echo (FSE) T٢-weighted sequence is performed initially providing an overview of the pelvis and showing the extent and the axis of the anal canal. The correct orientation of the anal canal for MR imaging is derived from this sequence providing truly axial and coronal images along the long axis of the anal canal and enabling correct assessment of perianal fistulas. The levator plate and the entire perineum were included to identify areas of sepsis and infected tracks that may lead to recurrence. These planes were used by many authors as Criado et al., ٢٠١٢; Liang et al., ٢٠١٤; Khera et al., ٢٠١٠.[١,٦,١٩]

The most appropriate protocol used in our center for evaluation of perianal fistulas consists of oblique axial T١-weighted FSE, oblique axial and oblique coronal T٢-weighted FSE, oblique axial and oblique coronal fat-suppressed T٢-weighted FSE and oriented perpendicular or parallel to the long axis of the anal canal. This technique was used by many authors[١٥,١]**.**

In our study we didn't use contrast because most of our patient had wide caliber tract so the high fluid intensity of fistuluous content gave good media for illustration of the fistulous tract. In a study done by Hutan et al., ٢٠٠٩ and Sofic et al., ٢٠١٠ they did not use contrast material and stated that contrast material is not necessary for examining patients with anal fistula.[١٧,١٢]

On the other hand other authors stated that contrast media is mandatory for detection of the anal fistula and any abscess formation. The contrast media enhances the wall of the fistula and the abscess making them more prominent thus it was helpful in detection of small fistula like Mazroa et al., ٢٠١٢ and Darwish et al., ٢٠١٣.[٨,١٣]

In Our study we found that most anal fistulas have undeterminable cause (٩٢٪). One of our patients had a history of

inflammatory bowel disease and in another patient, anal fistula developed as a late complication of episotomy incision**.** Most of authors stated that most perianal fistulas are of idiopathic cause[١].

Sofic et al., found that the most frequent etiologic cause of anal fistulae was Crohn's disease in ٣٧.٥٪ and the ulcerous colitis was the second cause. But after revision of his study we found that most patients had inflammatory bowel disease[١٢].

In our study we found that the inter-sphincteric and trans- sphincteric fistulas are the most common types representing (٥٢٪) and (٤٠٪) respectively. Supra-sphincteric and extra-sphincteric were the least types**.** These results were consistent with Mazroa et al., and Darwish et al., who found that the most common fistulous type was inter-sphincteric fistula about (٥٠٪) and (٦٣٪), respectively followed by the trans-sphincteric type which was about (٢٨.٦٪) and (٢٩٪) in both studies respectively[٨,١٣].

Sofic et al., studied patients with anal fistula due to pelvic inflammatory disease and found thatthe most common type of anal fistula is the transphincteric type followed by intersphincteric then recto-vaginal and extrasphincteric.[١٢].

MRI plays an important role in detection the level of the internal opening and course of the anal fistula as it can draw its tract and demonstrate its relation with the external sphincter. Although the most common site of anal connection is the dentate line, the anal fistula can be classified as low and high fistula. Anal fistula considered low if its level is below the lower one third of the external sphincter and high if it is seen related to the upper third of the external sphincter or related to levatorani[٢٠]**.**

In our study about ٧٦٪ of our patient had low anal fistula and ٢٤٪ had high anal fistula.

In our study, we found that patients with single tract (٥٢٪) were presented more than patients with secondary tracks (٤٨٪). These results are in accordance with Mazroa et al., ٢٠١٢ who found that a simple non branching tract were the commonest and were represented in ٧٨.٦٪ of patients while branching tracts were represented in ٢١.٤٪ but this is not in agreement with Lunniss et al., who compared the preoperative MRI assessment of the anal fistula and intra-operative findings and found that high concordance rates were reported in terms of recognizing the course of primary tracks [٨٦٪], demonstrating secondary tracks [٩١٪][٨,٢١].

On MR images the difference between fibrotic and active tracts can be easily made on T٢-weighted images and STIR. The active fistulas and abscesses, which are filled with pus and debris, appear hyperintense surrounded by hypointense fibrous wall. Also the difference between fluid within a tract (e.g. abscess) and active inflammation can be seen in STIR[٢٢]**.**
Our study found that ٨٨٪ of anal fistula had active tract and ١٢٪ had fibrotic and active tracts. It is difficult to differentiate a healed fibrotic track from an open inactive track which agreed with Beets-Tan. et al., ٢٠٠١ and Daabis et al., ٢٠١٣, however the MR imaging appearance of a healed fibrotic track typically lacked the hyperintense signal of fluid inside the active fistula track.[٢٣,١٤]

Abscess cavities may develop along the course of fistulous tracks. Characteristically, the abscesses associated with intersphincteric fistulas are peri-anal or indeed encysted within the inter-sphincteric space. Trans sphincteric fistulas are typically associated with ischiorectal fossa abscesses[٨]**.** In our study ٤٤٪ of anal fistula complicated by abscess and ١٢٪ of them had a horse shoe component. These results were consistent with the results of Mazroa et al., ٢٠١٢ who found that ١٤.٢٪ of the studied patients had a horseshoe component but only ١٧.٨٪ of them complicated by abscess[٨]

Horseshoe extensions spread across both sides of the internal opening and are recognized on MR images by their unique configuration. Horseshoe extensions may be intersphincteric, ischio-anal, or supra-levator. Complex extensions are especially common in patients with recurrent fistula-in-ano or in those who have Crohn's disease [٤,٢٤,٢٥,٢٦].

In our study the internal opening was successfully depicted by STIR and T٢WI in ٩٢ % and ١٠٠٪ respectively. The location of the level of the internal opening is important since this will determine the extent of sphincter division during fistulotomy. These results were consistent with **Stoker et al.** who studied imaging of anorectal disease and stated that T٢WI and STIR are the best sequences to detect the internal opening[٢٧]. Also, Mazroa et al., reported that T٢-FSE accurately detected the internal opening in ٨٩.٢٪ of the studied patients[٨].

In our study, the tract of anal fistulas was clearly detected in T٢ and STIR sequences ٩٥٪ & ٩٦٪ respectively. But in T١WI the tract detected in ٨٤٪ of the studied patients. In a study done by Baddar, ٢٠٠٧ who evaluated the role of MRI in perianal fistula, found that T٢ and STIR had a sensitivity of ٣٩.٧٪, ٧٩.٤٪ respectively[٢٨]. Heise et al., ٢٠١٢ stated that T٢W sequences (TSE and fat-suppressed) provide a good contrast between the hyperintense fluid in the tract and the hypointense fibrous wall of the fistula, while providing a good delineation of the layers of the anal sphincter[٢٩].

Van Koperen et al., ٢٠٠٨ stated that active tracts are filled with pus and granulation tissue and thus, appear as hyperintense longitudinal structures on T٢-weighted or STIR images Active tracts are often surrounded by hypointense fibrous walls, which could be relatively thick, especially in patients with recurrent disease and previous surgery. Occasionally, some hyperintensity in this fibrous area may be seen, probably reflecting edema. Hyper-intensity may also extend beyond the tract and its fibrous sleeve, where it represents adjacent inflammation[٤, ٢٤, ٢٥,٢٦] this is consistent with our study.

In our study T٢WI and STIR were the best sequences to detect the side branches. This agrees with EL Baddar who stated that STIR and axial T٢ with fat sat accurate in detection of side branching[٢٨].

Our study showed that axial plane was the best plane to assess the internal opening (١٠٠٪) and the course of the fistula (١٠٠٪). This agrees with Baddar, ٢٠٠٧ who stated that axial plane was accurate in detection of internal opening. Daabis et al., ٢٠١٣ also stated that axial plane was the best one used to detect the internal openning. The transverse images were found to be most helpful in recognizing infra-levator tracts and abscesses[٢٨,١٤].

In our study we noted that coronal plane had significant role in drawing the fistulas tract (٨٨٪), on the other hand the sagital plane had a very limited role in assessment of anatomical landmark for anal fistula (internal opening (٠٪) and tract (٤٪). This agrees with Al-Khawaria et al., who stated that coronal images were the excellent for detection of supra-levator tracts and abscesses[١٦].

In our study the data of the operated patients were well matched with MRI findings with sensitivity equal to ١٠٠٪. This agrees with Al-Khawaria et al., ٢٠٠٥ who reported that the MRI findings were in accordance with the examination findings under anesthesia and/or surgery in ١٥ of ١٦ cases[١٦]. In other studies as Mullen et al., ٢٠١١ who studied the indications and contribution of MR imaging of the fistula-in- ano to surgical assessment. They studied on ٤٠ cases and stated that MRI was considered helpful in ٣٤ cases (٨٥٪) of all cases. Mullen et al., ٢٠١١ and Daabis et al., ٢٠١٣, found that MRI is helpful in ٨٨٪ of cases.[٣٠,١٤]

In our study we concluded that in all the positive cases of anal fistula, the use of different MR sequences and imaging planes provided most of the details necessary for an accurate evaluation of anal fistulas. Coronal images depicting the levator plane, thereby allowing differentiation of supra-levator from infralevator infection.

Thus MRI is the modality of choice in preoperative assessment of anal fistula. It helps the surgeon in detection the pathway of fistulaous tract and its relation to anal sphincter complex. It also detects the site of internal opening identical with the surgical position in addition it illustrates if the fistula is high or low. The MRI also plays crucial role in the ability to detect the complications like abscess and secondary tract formation. Axial and coronal planes in T٢WI and STIR sequences are the most important in MRI protocol to assess the fistula and its complication. Contrast study may not be helpful in the assessment of large caliber fistula but it plays a role in the assessment of small fistula.

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