Volume 20 Issue 67
Originally issued as K13



Global Journal of Medical Research: K
Interdisciplinary
Volume 20 Issue 13 Version 1.0 Year 2020
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

Hidradenitis Suppurativa- The Imaging Spectrum

By Vasundhara Singh, Chitrangada Singh & Sharmila Patil

Norfolk and Norwich University

Abstract- This was a retrospective study including 10 cases of histologically proven Hidradenitis suppurativa to compare the Histological features with MRI findings and eventually derive a clinical classification including both parameters.

Keywords: *hidradenitis, MRI, follicular hyperkeratosis, sinus tract.*

GJMR-K Classification: *NLMC Code: WR 430*



Strictly as per the compliance and regulations of:



© 2020. Vasundhara Singh, Chitrangada Singh & Sharmila Patil. This is a research/review paper, distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 Unported License http://creativecommons.org/licenses/by-nc/3.0/), permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Hidradenitis Suppurativa- The Imaging Spectrum

Vasundhara Singh [α], Chitrangada Singh [σ] & Sharmila Patil [ρ]

Abstract- This was a retrospective study including 10 cases of histologically proven Hidradenitis suppurativa to compare the Histological features with MRI findings and eventually derive a clinical classification including both parameters.

Keywords: hidradenitis, MRI, follicular hyperkeratosis, sinus tract.

I. Introduction

Also known as Acne inversa or the Verneuil's disease, Hidradenitis suppurtiva is a chronic disease with recurrent abscess formation progressing to sinus tracts and resultant scarring. It was first described by Velpeau in 1839during his study involving the origin of abscess involving the sebaceous follicles in axillae [1]

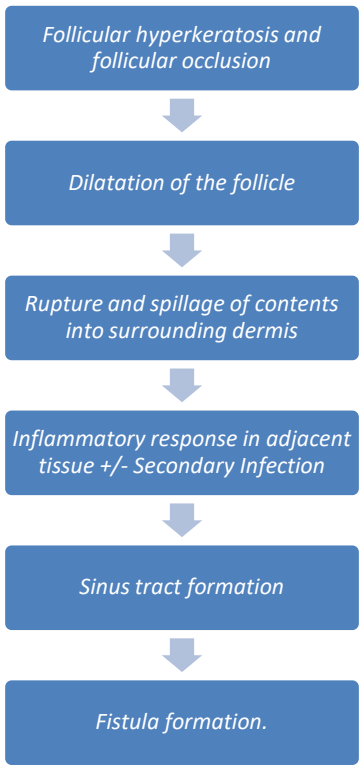
It is commonly seen in females and also incidence involving the axilla in both sexes is nearly equal.

Commonly seen in adolescents, it initially presents like a comedo and progresses with muco-purulent discharge eventually leading to scarring.

II. Epidemiology

- Prevalence: 1 in 300 adults
- Sex predilection: Females > Males
- Onset: Adolescent to middle age
- Family history: Positive family history with an autosomal-dominant mode of inheritance
- Associations: Crohn's disease, Dowling Dego's, Arthropathy (SAPHO), Smoking, Obesity, Hormonal influence [2]

III. Pathophysiology



Author α ρ: MBBS, MD Dermatology and venerology, Department of Dermatology and Venereal Medicine, Dr.D.Y.Patil Hospital and Research Centre, Navi Mumbai (India).
Corresponding Author σ: MBBS, MD Radiology, Senior clinical Fellow, Department of Breast Imaging, Norfolk and Norwich University Hospital, UK.
e-mail: chitrangada.singh@gmail.com

© 2020 Global Journals

Clinical Classification: Hurley stages-3 well delineated stages have been described by Hurley emphasizing the clinical diagnosis.

Stage 1: Solitary or multiple isolated abscesses. No scarring or sinus tracts are seen- resembles an acne.

Stage 2: Recurrent abscess may be single or multiple widely separated lesions. Sinus tract may be present. Patient has significant movement restriction.

Stage 3: Diffuse or broad involvement across a regional area with multiple inter-connected sinus tracts and abscesses. Significant scarring is seen and fistula formation is present.

IV. Imaging

Imaging evaluation is initially indicated to evaluate the extent and the feasibility to obtain image guided aspirate for culture and sensitivity. A simple ultrasound guided aspiration of the involved part can be used to obtain sample for culture and sensitivity if secondary infections are suspected when there is no sinus tract to directly obtain swabs. [3]

MRI is the preferred modality for evaluating the extent of disease as well as follow up.

V. MRI Spectrum

The protocol

The MRI of the involved area is best suited to evaluate the extent of disease and also may help in monitoring treatment response. The MRI findings parallel with the clinical features therefore avoiding any clinical confusion. STIR (Short tau inversion recovery) and T2W sequences are recommended protocol.

It may initially just show thickening of the skin and subcutaneous tissue which soon progresses to induration best seen on routine T2W and STIR images as subdermal hyperintense signal extending upto skin. In a few days there is formation of subcutaneous abscesses however the disease is confined to the skin and subcutaneous tissue. MRI will show loculated T2W and STIR hyperintense pockets of collection with mild post contrast rim enhancement. This correlates to Stage 1 of clinical classification. (Refer figure A)

This may either heal by mild scarring or progress towards chronic skin involvement in the form of multiple raised subdermal pockets of pus which ultimately rupture to form sinus tract. (Refer figure B) This correlates to Stage 2 of clinical classification.

The stage 3 of clinical classification is includes extensive local involvement in terms of area as well as severity and often includes refractory cases with multiple interconnecting sinus tracts. The chronicity can be identified by thick walls of the sinus tract appearing hypointense on STIR due to scarring.(Refer figure C)

Rarely there is fistulous communication with bladder urethra or rectum etc. in patients with highly virulent infection or compromised immune status like diabetes.

Reactive inguinal lymph nodes are also seen in conjunction.

Post treatment cases demonstrate residual scarring as STIR hypointense tracts. (Refer figure D)

VI. Differential Diagnosis

Carbuncles, Lymphadenitis, Infected Bartholin's cyst, sebaceous cysts, Cellulitis/ erysipelas, Lumbo-sacral epidural abscess are few of the common differential diagnosis which can be easily ruled out combining the imaging and the clinical picture. [4]

VII. Sequelae

Various sequel can be strictures, disfiguring edema, arthropathy and chronic cases may undergo metaplasia and even lead to squamous cell carcinoma.

VIII. Treatment

Treatment of HS is directed according to disease severity. Aim is to alleviate symptoms and improve quality of life. Many a times combination therapy is resorted.

a) Anti-inflammatory Agent [5]

- Intralesional steroids: Triamcinolone acetonide 2-5mg/ml can be used for few lesions
- Anakinra: An IL-1 inhibitor (100mg SC/day for 12 weeks) showed reduction in severity of disease
- Antibiotics: Many topical and oral antibiotics like clindamycin(1%;300mg BD), tetracycline, rifampicin(300mg BD); have been used alone or in combination for their anti-inflammatory and immunomodulatory properties.[6] A study of hyperbaric oxygen therapy with antibiotic combination showed good improvement in sartorius and DLQI score.[7]

Antiandrogens: Although anecdotal in females, a double blinded study in women with Cyproterone acetate(100mg) and Ethinyl estradiol(50 micrograms) as per reversed sequential therapy laid down by Hammerstein and Cupceancu, showed reduced discharge and swelling. [8]

Finasteride(5-10 mg/day) used primarily for prostate cancer showed good results in pediatric patients. [9]

b) Retinoids

Isotretinoin worked in patients with mild disease when given in low doses 0.5-1.2 mg/kg/day over 4 to 12 months. [10]

A study of Acitretin (0.6mg/kg/day) over 6 to 12 in 12 patients with moderate to severe disease showed improvement. [11]

© 2020 Global Journals

The mechanism of action is through the keratolytic action thereby reducing ductal occlusions.

c) Immunosuppresive therapy

Cyclosporine (4.5mg/kg/day) showed raid relief in resistant cases to antibiotics and UVB therapy. [12]

TNFα inhibitors have been proven to be quite effective in Hurley's II and III stages of the disease.

Infliximab 5mg/kg IV at week 0, 2 and 6 were given to 33 patients; drug was well tolerated and showed good improvement in symptoms and severity of the disease. [13] Etanercept showed varied results when administered twice weekly 50mg for 12 weeks.

Adalimumab when given weekly instead of fortnightly showed superior results when 4 randomized control trials were analysed. [14,15]

Apremilast a selective phosphodiesterase 4 inhibitor (30 mg BD); used primarily for psoriasis; showed moderate results. [16]

d) Miscellaneous

Botulinum toxin reduces acetylcholine release and in turn reduces the sympathetic activation of apocrine glands. A dose of 40 to 50 Units per session for 3 to 4 times over 3 years reported remission in 4 cases. [17,18]

Metformin helps in decreasing androgen sensitivity by lowering circulating insulin and helps in managing the metabolic syndrome associated with disease. [19]

Others: Zinc, Cryotherapy and Photodynamic therapy

e) Surgical Intervention

This is the last resort to unresponsive cases. Deroofing is most effective in combination with antibiotics and anti-inflammatory. [20]

f) Laser therapy

Nd: YAG laser in 22 patients showed significant improvement in all (65%), axilla (62%), Inguinal (53%), Inframammary (51%). [21]

Carbon dioxide laser for lesions to heal by secondary intention has also been tried. [22]

HURLEY STAGE	TREATMENT
I	Topical antibiotics (clindamycin 1%, Benzoyl Peroxide gel 2.5/5%); Intralesional steroids; Oral Antibiotics: Tetracyclines; Retinoids; Nd YAG; cryotherapy; Botox
II	TNFα inhibitors Antibiotics Nd YAG Surgical/ CO_2 deroofing
III	Surgical with Oral antibiotics

References Références Referencias

1. Wiseman MC. Hidradenitis suppurativa: a review. Dermatol Ther 2004; 17:50 –54.
2. Slade DE, Powell BW, Mortimer PS. Hidradenitis suppurativa: pathogenesis and management. Br J Plast Surg 2003; 56:451 –461.
3. Kelly AM, Cronin P. MRI features of hidradenitis suppurativa and review of the literature. AJR Am J Roentgenol. 2005; 185 (5): 1201-4.
4. Church JM, Fazio VW, Lavery IC, Oakley JR, Milsom JW. The differential diagnosis and comorbidity of hidradenitis suppurativa and perianal Crohn's disease.
5. Tchero H, Herlin C, Bekara F, Fluieraru S et al. Hidradenitis suppurativa: A systematic review and meta-analysis of therapeautic interventions. Indian J Dermatol Venerol Leprol 2019; 85:248-57.
6. Clemmensen OJ. Topical treatment of hidradenitis suppurativa with clindamycin. Int J Dermatol 1983; 22: 325-8.
7. Yildiz H, Senol L, Ercan E, Bilgili ME, Karabudak Abuaf O. A prospective randomized controlled trial assessing the efficacy of adjunctive hyperbaric oxygen therapy in treatment of hidradenitis suppurativa. Int J Dermatol 2016; 55:232-7.
8. Sawers RS, Randall VA, Ebling FJ. Control of Hidradenitis suppurativa in women with combined antiandrogen and oestrogen therapy. Br J Dermatol 1986; 115: 269-74.
9. Randhawa HK, Hamilton J, Pope E. Finasteride for the treatment of hidradenitis suppurativa in children and adolescents. JAMA Dermatology 2013; 149(6):732-5.
10. Boer J, van Gemert MJ. Long-term results of isotretinoin in the treatment of 68 patients with hidradenitis suppurativa. J Am Acad Dermatol 1999; 40:73-6.
11. Boer J, Nazari M. Long term results of acitretin therapy for Hidradenitis suppurativa. Is Acne-inversa a misnomer? Br J Dermatol 2011; 164(1):170-5.
12. Buckley DA, Rogers S. Cyclosporin-responsive hidradenitis suppurativa. J R Soc Med 1995; 88:289P-90P.
13. Adams DR, Yankura JA, Fogelberg AC, Anderson BE. Treatment of hidradenitis suppurativa with etarnacept injection. Arch Dermatol 2010;146:501-4.
14. Gottlieb A, Menter A, Armstrong A, Ocampo C, Gu Y, Teixeira HD. Adalimumab treatment in women

© 2020 Global Journals

with moderate to severe hidradenitis suupurativa from the placebo-controlled portion of a phase 2, randomized, doble-blind study. J Drugs Dermatol 2016;15 :1192-6.
15. Kimball AB, Okun MM, Williams DA, Gottlieb AB, Papp KA, Zouboulis CC, et al. Two phase 3 trials of adalimumab for hidradenitis ssupurativa. N Eng J Med 2016; 375:422-34.
16. Weber P, Seyed Jafari SM, Yawalkar N, Hunger RE. Apremilast in the treatment of moderate to severe hidradenitis suppurativa: A case series of 9 patients. J Am Acad Dermatol 2017; 76:76:1189-91.
17. Fieto-Rodriguez M, Sendagorta-Cudos E, Herranz-Pinto P, de Lucas-Laguna R. Prepubertal hidradenitis suppurativa successfully treated with botulinum toxin A. Dermatol Surg 2009;35: 1300-2.
18. Khoo AB, Burova EP. Hidradenitis suppurativa treated with clostridium botulinum toxin A. Clin Exp Dermatol 2014;39:749-50.
19. Arun B, Loffeld A. Longstanding Hidradenitis suppurativa treated effectively with metformin. Clinical and Exp Dermatology 2009; 34(8):920-1.
20. van der Zee HH, Prens EP, Boer J. Deroofing: A tissue saving surgical technique for the treatment of mild to moderate hidradenitis suppurativa lesions. J Am Acad Dermatol 2010;63:475-80.
21. Tierney E, Mahmoud BH, Hexsel C, Ozog D, Hamzavi I. Radomized control trial for the treatment of hidradenitis suppurativa with Nd YAG laser. Dermatol Surg 2009; 35:1188-98.
22. Finley EM, Ratz JL. Treatment of hidradenitis suppurativa withcarbon dioxide laser excision and second intention healing. J Am Acad Dermatol. 1996; 34:465-9.

Figures and Legends



Figure A: Hurley Stage 1 MRI Axial STIR image of the perineum shows multiple isolated abscesses within the left natal cleft.

© 2020 Global Journals

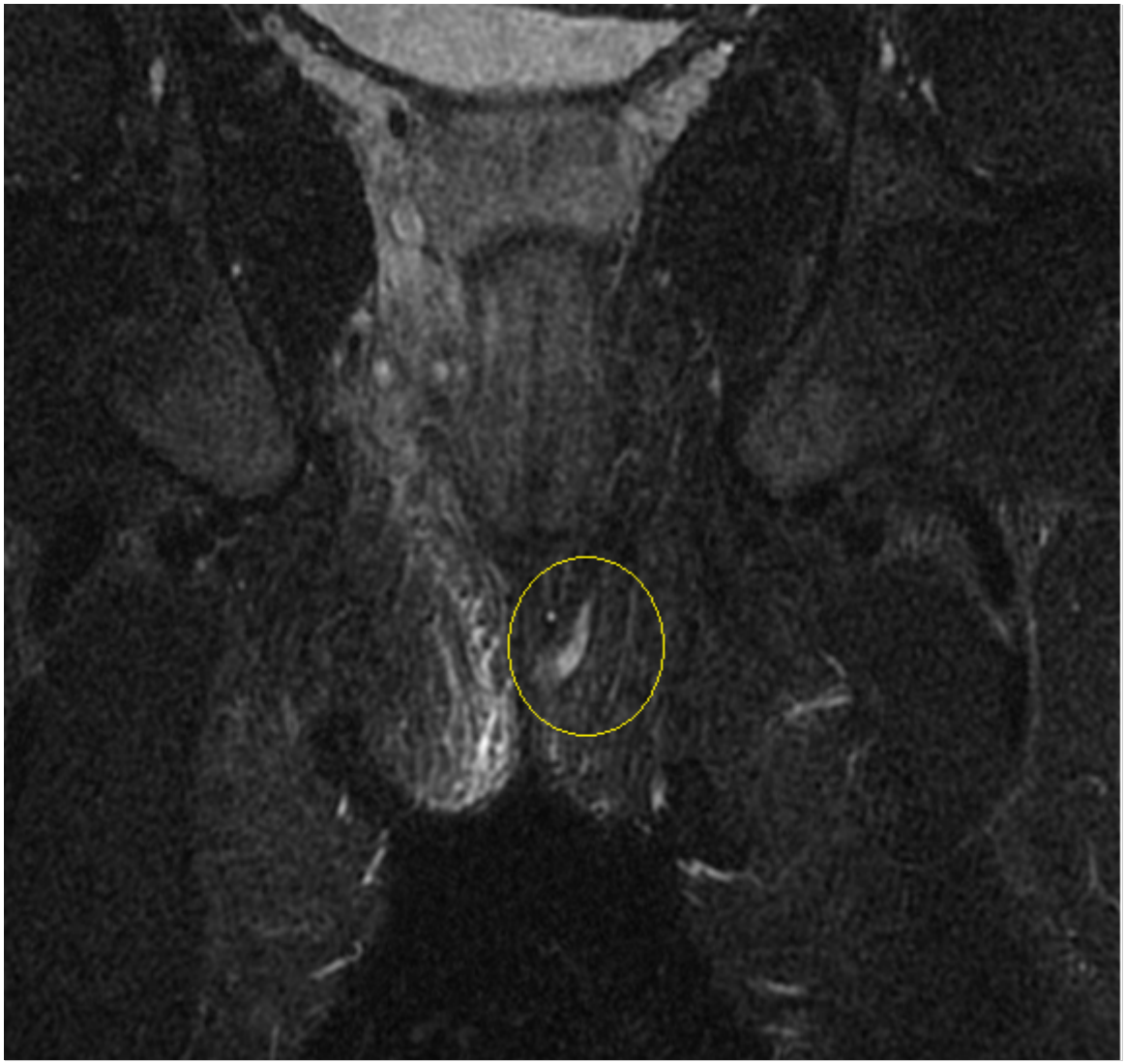


Figure B: Hurley Stage 2 MRI of the perineum: Coronal STIR image shows evolution of the abscess into a linear hyperintense tract/ sinus formation.

© 2020 Global Journals

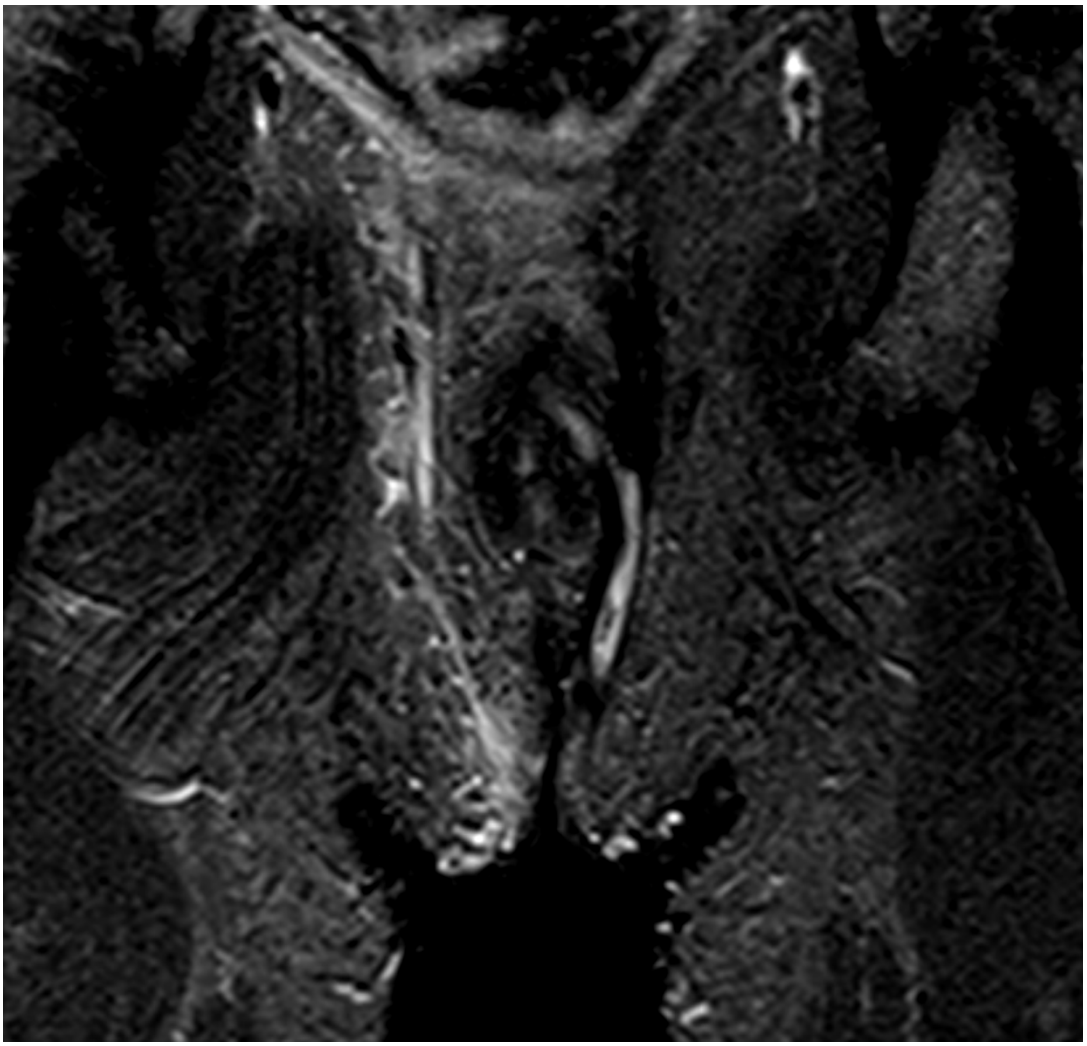


Figure C: Hurley Stage 3.

MRI of the perineum: Coronal STIR image from the selected slices shows evolution of the abscess into a linear hyperintense tract/ sinus formation. Due to chronicity of the sinus, the tract appears more fibrosed and hypointense.

© 2020 Global Journals

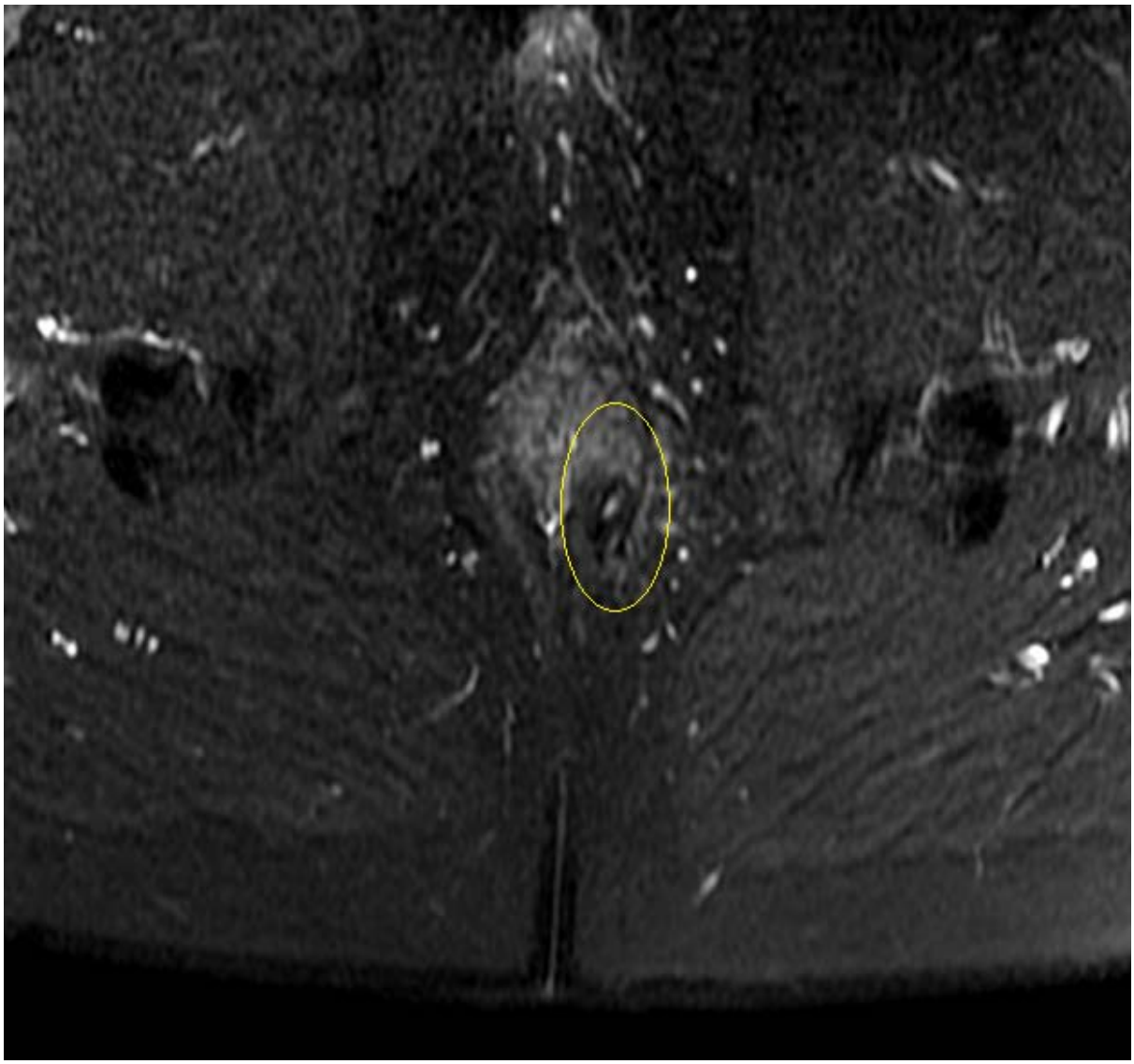


Figure D: Resolution post treatment

MRI of the perineum: Axial STIR image shows residual minimal inflammation with majority of fibrosis as hypointense scar.

© 2020 Global Journals