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Hidradenitis Suppurativa- The Imaging Spectrum

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Hidradenitis Suppurativa- The Imaging Spectrum

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I. INTRODUCTION

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

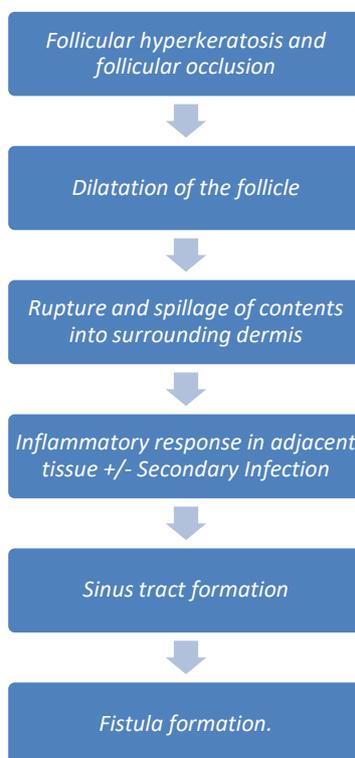
It is commonly seen in females and also incidence involving the axilla in both sexes is nearly equal.

Commonly seen in adolescents, it initially presents like a comedo and progresses with mucopurulent 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 Deigo's, Arthropathy (SAPHO), Smoking, Obesity, Hormonal influence [2]

III. PATHOPHYSIOLOGY



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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, Lumbosacral 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]

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

c) *Immunosuppressive therapy*

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

TNF α 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	TNF α inhibitors Antibiotics Nd YAG Surgical/ CO2 deroofing
III	Surgical with Oral antibiotics

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Figures and Legends

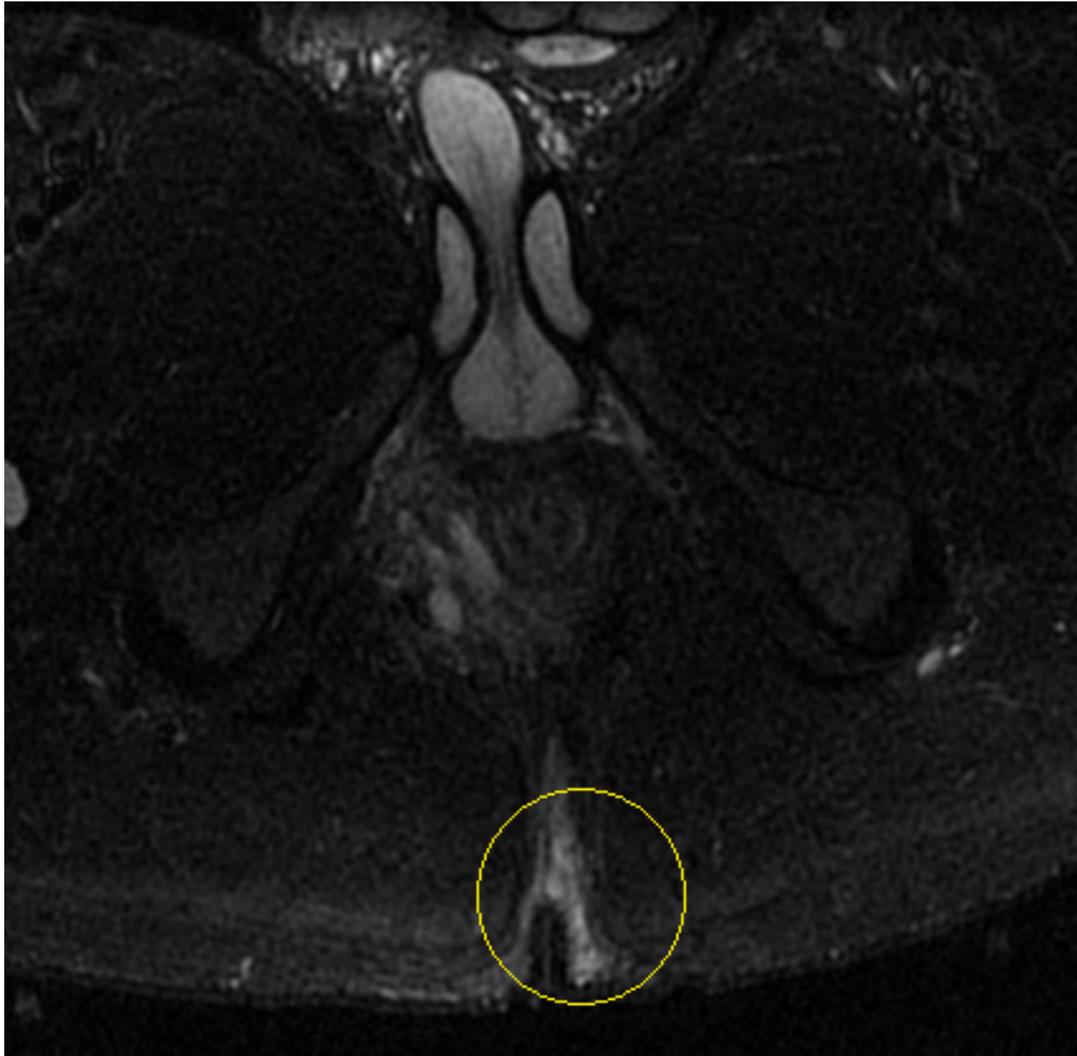


Figure A: Hurley Stage 1 MRI Axial STIR image of the perineum shows multiple isolated abscesses within the left natal cleft.

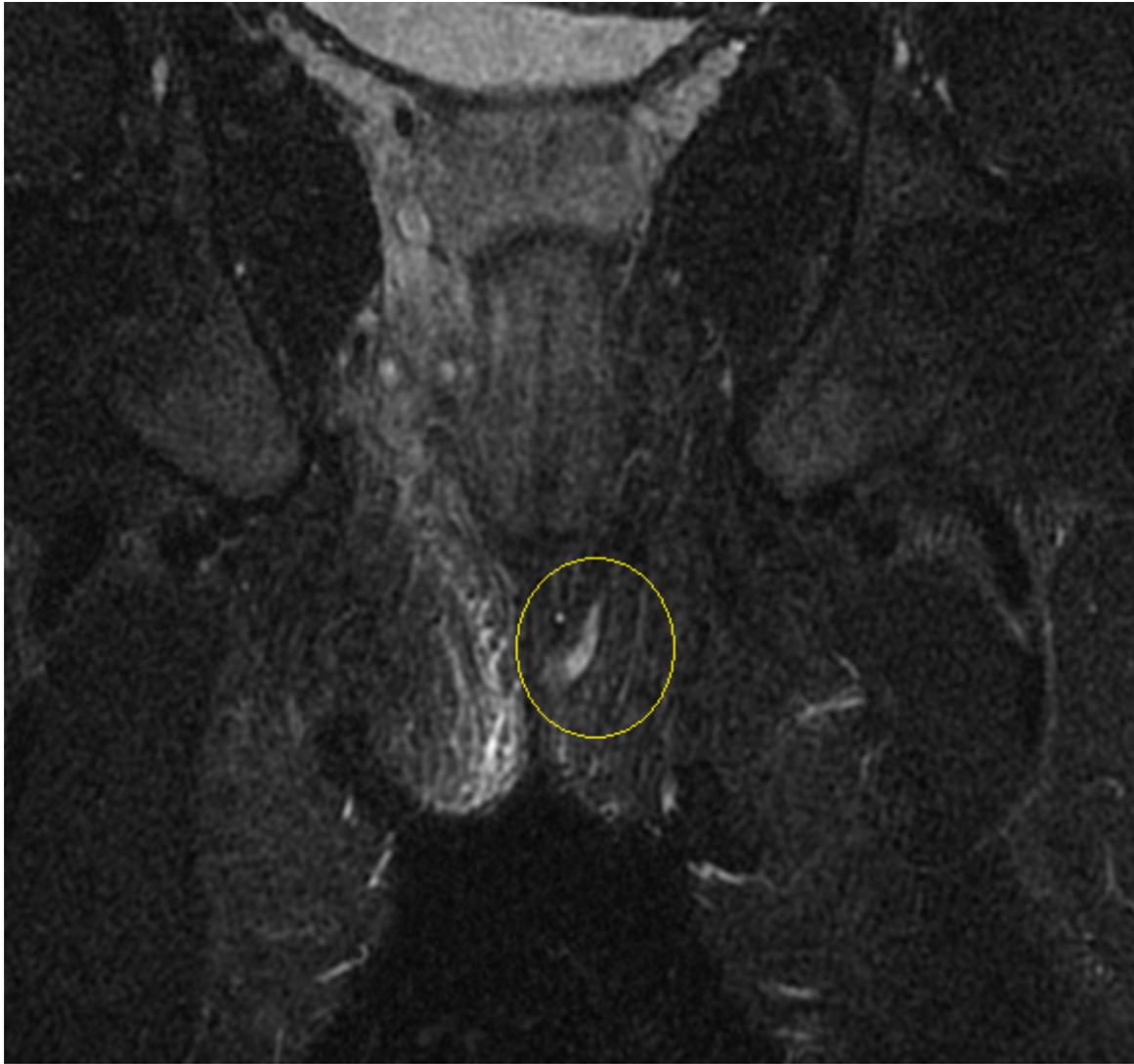


Figure B: Hurley Stage 2 MRI of the perineum: Coronal STIR image shows evolution of the abscess into a linear hyperintense tract/ sinus formation.



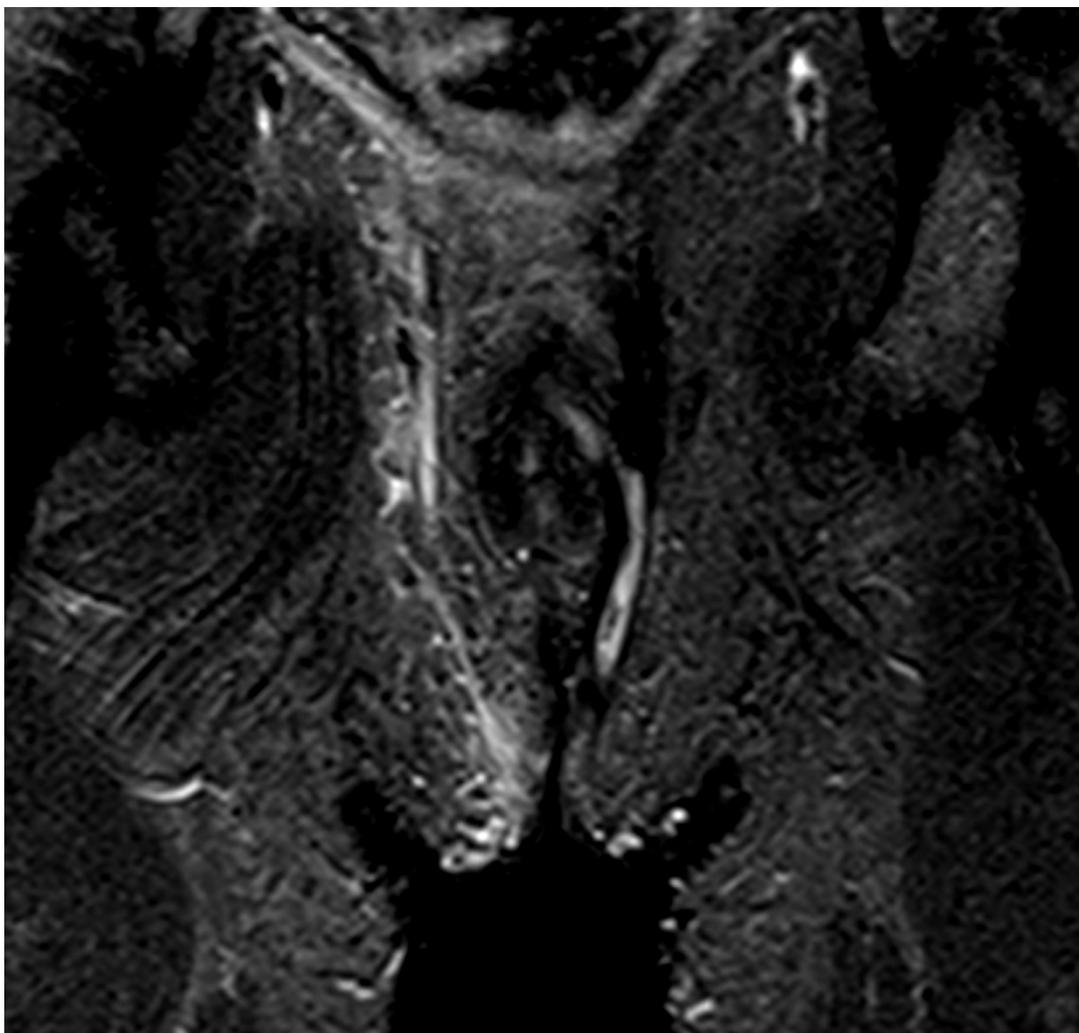


Figure C: Hurley Stage 3.

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.



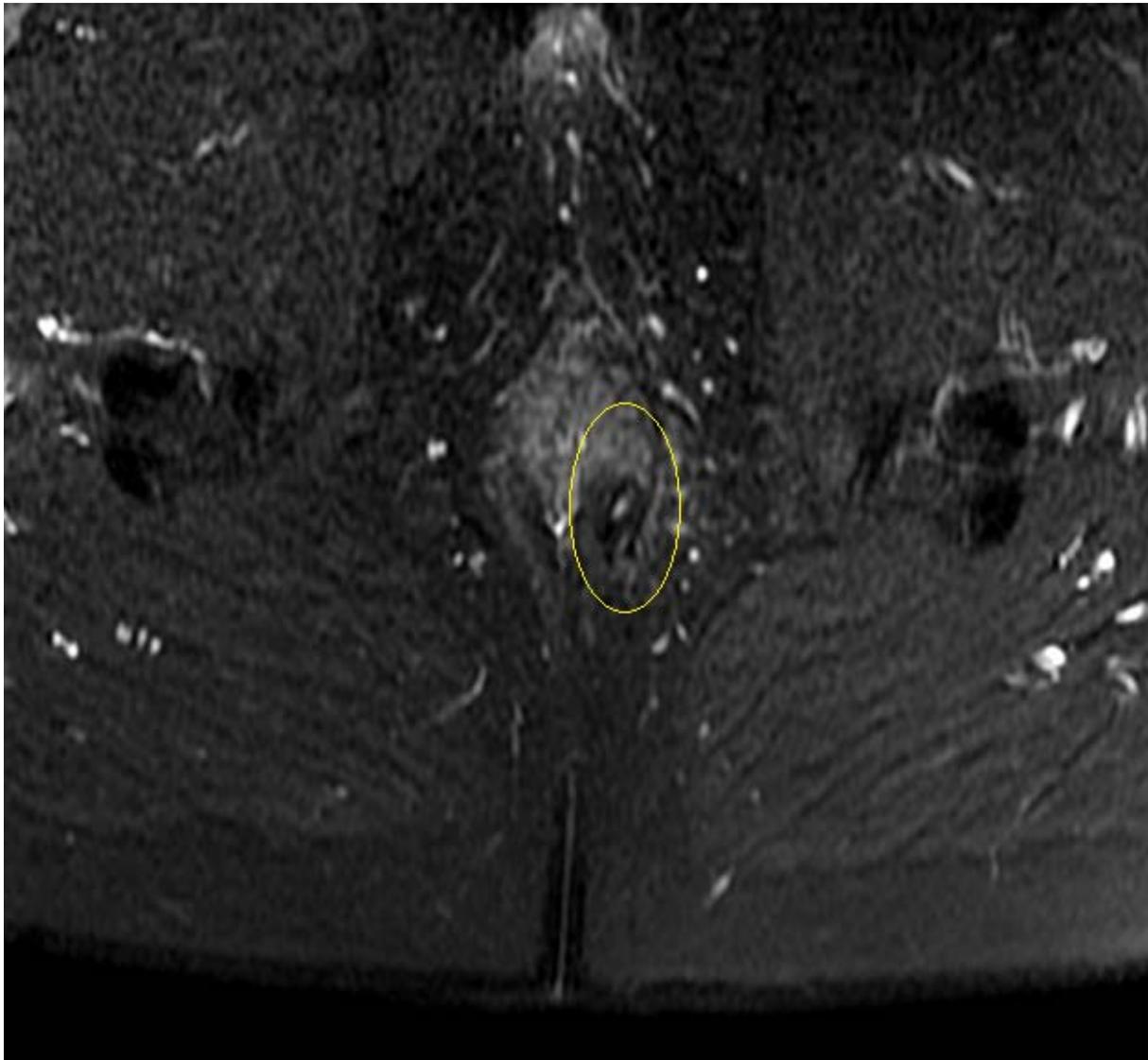


Figure D: Resolution post treatment

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

