Hidradenitis suppurativa, evaluation using MRI


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Abstract: This corresponds to an inflammatory disease of the apocrine glands, distributed mainly in the axillary, perineal and perianal regions, clinically characterized by pain, swelling, and smelly discharge. Treatment is expensive, long and leaves large scars, generating economic and psychological problems for the patient. Magnetic resonance imaging (MRI) helps to confirm the diagnosis and determine its extension, which allows it to be distinguished from other entities and to choose the best treatment. To our knowledge, there is only one review of literature dedicated to the characteristics of this pathology using MRI, therefore we present an illustrated literature review in different patients treated at our center.

Keywords: Acne inversa, Hidradenitis supurativa, MRI, Verneuil’s disease.

Resumen: Corresponde a una enfermedad inflamatoria de las glándulas apocrinas, distribuidas principalmente a nivel axilar, perineal y perianal, caracterizado clínicamente por dolor, tumefacción y secreción mal oliente. Su tratamiento es costoso, largo y deja grandes cicatrices, generando problemas económicos y psicológicos para el paciente. La resonancia magnética (RM) ayuda a confirmar el diagnóstico y a determinar su extensión, lo que permite diferenciarlo de otras entidades y elegir el mejor tratamiento. A nuestro conocimiento, existe sólo una revisión de la literatura dedicada a las características de esta patología en resonancia magnética, por lo que presentamos una revisión de la literatura ilustrada en diferentes pacientes tratados en nuestro centro de atención.

Palabras clave: Acné reverso, Enfermedad de Verneuil, Hidradenitis supurativa, RM.

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Introduction
First described by Velpeau in 1839(1) and then by Verneuil in 1864(2) suppurative adenitis is a recurring inflammatory disease of the apocrine glands which are located in the subcutaneous cellular plane and are distributed mainly in the armpits, perineum and perianal region(3,4). It greatly compromises the quality of life of patients given the great pain it causes, associated bad odor, high recurrence of the symptoms, costly treatment and fibrotic sequelae that lead to disfigurement and large surgical resections of the patient(4,5). Its mechanism is unclear and its management is very broad, using topical treatments, oral medications or surgical resections and should be personalized for each patient based on their clinical and imaging characteristics(3,4,6).

Epidemiology
Its prevalence is estimated to be up to 1% in the general population(7,8), currently there are controversies as to which gender it generally affects more, although there are locations that favor more one gender: the inguinal form is more frequent in women, the perianal form more in men and the axillary has no preference(5,7,8). This condition is rarely seen in patients prior to puberty or after menopause, varying its presentation in ages between 11 and 50 years old, with an average of 23 years(6,8). In up to 25% of cases there is family history with an autosomal dominant inheritance pattern(6,9). Some risk factors are trauma, use of androgens, using antiperspirants, obesity, smoking(7,10,11). Also described have been some autoimmune defect(12,13) and hormonal influences(14). There also exists a link to other diseases such as Crohn’s disease (with which
it constitutes a differential diagnosis), Dowling Degos disease and inflammatory arthritis\(^{14}\).

**Physiopathology**

The apocrine glands are found in the thickness of subcutaneous tissue, distributed in the axillary area, perineum, inguinal crease and to a lesser extent in the interscapular region, periareolar region, pubis, retrorauricular, scalp, eyelids and malar regions. They open into a hair follicle and are responsible for the odor in perspiration. Although the cause why this disease is triggered is not entirely clear, it is postulated that an obstruction occurs in the hair duct and its apocrine glands, followed by an infection of the follicle and after that an eventual rupture in the subcutaneous space generating abscesses in its thickness. These, like other abscesses, can evolve to resolution or fistulization with important fibrotic scarring phenomena\(^{3,4,6,9}\).

**Clinical condition**

It is a condition of insidious onset, beginning with itching associated with erythema and then hyperhidrosis. Subsequently, the lesions become painful, nodular and coalesce forming abscesses, draining into the skin\(^{3,6}\). In the perianal affected area, they can also drain into the rectum and anus\(^{3,9}\) and can coexist with two other inflammatory diseases, Crohn's disease and Crypto-glandular inflammatory disease, also constituting a differential diagnosis\(^{8,15,16,19,20}\). Once the acute condition has passed, there is a high rate of recurrence, which eventually leads to scarring and local deformity associated with the presence of fistulas. The diagnosis is purely clinical, creating some classification systems to guide treatment\(^{17,18}\).

**Features in MRI**

The reasons for requesting a magnetic resonance imaging (MRI) of the pelvis in this disease are three: confirm the diagnosis, determine its extent and make the differential diagnosis with Crohn's disease and Crypto-glandular inflammatory disease. On examination, a thickening of the dermis and subcutaneous plane is observed, which is of low signal on T1 sequences, high signal on T2 sequences, with well defined edges (Figure 1). Presents enhancement with the use of paramagnetic contrast agent (Figure 2) and restricts diffusion (Figure 3). These alterations are associated with rounded collections in the subcutaneous plane corresponding to abscesses, which are of low signal on T1, high signal on T2 sequences, sometimes difficult to identify because of the adjacent inflammatory changes, becoming evident with the use of Gadolinium, presenting annular enhancement with the use of contrast and restricted diffusion (Figure 4). You can also observe sinus tracts distributed in the subcutaneous layer of the affected areas that flow to the skin (Figure 5), which in the case of perianal location, these can lead to the rectum in its distal third and the anal canal, constituting a differential diagnosis with Crohn's disease and Crypto-glandular disease, both being able to coexist\(^{8,16,19}\).

The patient's age, its classic distribution, fistulas draining into the skin from small subcutaneous abscesses and high recurrence of the condition orient us to the diagnosis of HS. The Crypto-glandular disease usually has no chronicity and recurrence of the disease and is limited to the perianal region. Crohn's disease is usually accompanied by other manifestations such as ulcerations, colonic strictures, fistulas of the digestive tract and skin lesions\(^{8,20}\).

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**Figure 1. Pelvis MRI. Axial T1-weighted sequence (a) and T2 (b) in a patient suffering from Crohn’s disease and hidradenitis suppurativa as a complication.** Thickening of the dermal plane and subcutaneous tissue of the inner thighs is observed, extending to the perineum. This thickening has well defined borders representing the inflammatory process secondary to the compromising of the apocrine glands.
**Figure 2.** Pelvis MRI. Sagittal T1-weighted sequence with fat saturation in portal-venous phase after injection of paramagnetic contrast medium in a patient with hidradenitis suppurativa. A substantial enhancement of the dermal plane and subcutaneous tissue of the intergluteal cleft, perineum region and inner thighs is observed.

**Figure 3.** Pelvis MRI. Axial diffusion sequence (a) b800 and (b) ADC map at the same level as displayed in Figure 1. An important restricted diffusion with correlation in ADC map of the thickening of the dermal plane and subcutaneous tissue previously described can be seen.

**Figure 4.** Pelvis MRI. Axial T1-weighted sequence with fat saturation in portal-venous phase after injection of paramagnetic contrast in patients illustrated in Figures 1 (a) and 2 (b), showing significant uptake of the paramagnetic contrast agent by the inflammatory process in both patients and in the thickness of this nodular images can be identified that present annular enhancement with the gadolinium, compatible with abscesses (arrows).
Treatment

Multiple treatments have been described which vary depending on the severity and chronicity of the disease. Weight loss has been used, local cleansing and warm compresses, associated with the use of topical antibiotics, systemic antibiotics, retinoids, hormones and steroids, not only intralesional but also orally, describing high recurrence\(^{4,6,9}\). Surgical treatment in the localized disease presents a lower rate of recurrence, using cryotherapy, radiation therapy, laser therapy and incision-drainage, the latter being the most widely performed. For the advanced disease, the choice is bloc resection, removing all the apocrine glands in the affected region, healing by secondary intention or use of grafts. This can lead to major surgeries that leave considerable scars, however, it is the method that presents the lowest rate of recurrence\(^{4,5,9}\).

Conclusion

Hidradenitis suppurativa is a rare disease, but it can lead to a significant deterioration in the quality of life for patients, due to the symptoms, expensive treatment and healing in surgically treated cases.

MRI is useful tool to confirm the diagnosis, differentiate it from other similar entities and especially to determine the extension in order to achieve the best possible treatment for the patient.

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