CASE REPORT

Hidradenitis suppurativa, neutrophilic dermatoses and diverticular disease in a young African-American patient

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Accepted 27 January 2017

SUMMARY

Hidradenitis suppurativa (HS) is a chronic skin disorder of the terminal follicular epithelium of apocrine sweat glands, manifesting as painful and exudative papules, pustules, cysts or nodules. This inflammatory condition often presents with other systemic and cutaneous disorders. We present the case of an African-American man with HS who was also diagnosed with neutrophilic dermatoses and diverticular disease. Neutrophilic dermatosis was identified based on histopathology findings. Our patient underwent multiple surgeries for flaring of his skin condition. Colchicine and doxycycline were started, but the patient was not able to tolerate them. Humira was planned for treatment of HS and neutrophilic dermatosis but could not be pursued because of the pericolic abscess. Colonoscopy and radiological investigation revealed multiple colonic diverticuli, for which he initially underwent percutaneous drainage followed by surgical removal of sigmoid mass and colocutaneous fistula. Culture from the specimen revealed abnormal growth of *Actinomyces*.

BACKGROUND

Hidradenitis suppurativa (HS), also known as acne inversa, is an inflammatory skin condition that often presents as cysts, nodules, abscesses, fibrosis, dermal contractures and sinus tracts in the axilla, perineum and inframammary sites, along with subsequent scarring.^{1–5} Literature reports of diverticular disorders associated with this skin condition are not common. We present here the case of a man with a history of HS with coexisting neutrophilic dermatoses, and diverticular disease confirmed with imaging.

CASE PRESENTATION

An African-American man aged 33 years presented to clinic with a history of HS that initially began on the lower back, and then spread to the groin, underarms and side of the face, scalp and legs. The patient also had a history of acne, dissecting cellulitis of the scalp and pilonidal cyst. The patient thus met the criteria for follicular occlusion triad. Previous surgeries for HS included excisions in the groin, skin grafts on bilateral anterior thighs and excisions in the axilla.

At that visit, the patient had multiple superficial fluid-filled draining tracts on the scalp and scrotum. In addition, clinical examination showed new erythematous subcutaneous nodules along the right shin with an overlying collarette scale and a

hyperpigmented, shiny, atrophic plaque with surrounding tenderness and erythema on the medial left leg.

The patient was also evaluated by the Infectious Disease team, who ruled out any deep microbial infection and recommended immunosuppressive therapy for HS and possible pyoderma gangrenosum if needed. The patient continued to present with pink-coloured papules and pustules as well as sinus tracts with prominent scarring on the scalp, axilla and inguinal area.

The patient was later seen in the Gastroenterology clinic for severe lower abdominal pain for a duration of 9 months, decreased amount of non-bloody stools, weight loss of 100 pounds for 11 months, poor appetite, regurgitation after large meals and early satiety.

INVESTIGATIONS

Punch biopsy of the right lower extremity showed an abscess in the superficial dermis along with a collection of neutrophils in the deep dermis and subcutaneous tissue, supporting the diagnosis of neutrophilic dermatoses. Pan tissue culture was negative for aerobic/anaerobic bacteria, fungi and acid-fast bacilli.

Colonoscopy showed a thick and inflamed left colon and a pericolic abscess that was percutaneously drained. A CT scan revealed multiple colonic diverticuli with diffuse wall thickening of the sigmoid colon with pericolic fluid and fat stranding most consistent with acute diverticulitis.

DIFFERENTIAL DIAGNOSIS

The patient's gastrointestinal symptoms in association with his skin condition led to suspicion for inflammatory bowel disease.

TREATMENT

The patient's prior treatment regimen included bacrim double strength two times per day for 5 months, which slowed disease progression slightly but did not clear it. The patient was then started on doxycycline 100 mg two times per day and Hibiclens 4% wash daily with a plan to start adalimumab after ruling out infection.

After the patient was seen by the Infectious Disease team, bacrim was discontinued, and the patient was subsequently started on colchicine 0.6 mg two times per day. Since the patient continued to develop pink papules and pustules and sinus tracts, colchicine treatment was increased to 0.6 mg

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To cite: Darji K, Dhandha MM, Guo M. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2016-217845

three times daily, along with continuing doxycycline 100 mg two times per day. The patient continued to flare. He eventually discontinued colchicine and doxycycline due to abdominal symptoms, including bloating, nausea and discomfort. Adalimumab was unable to be initiated because of ongoing pericolic infection.

Owing to the severity of symptoms, the patient underwent surgery for excision of scalp hidradenitis, split-thickness skin graft to the scalp and incision and drainage of right thigh abscess. Approximately 3 months after surgery, the patient's presentation at the Dermatology clinic showed some improvement. The patient was only using Hibiclens wash for his HS.

After the patient was confirmed to have diverticular disease, he was noted to have fluctuant nodules in the submandibular and upper neck regions, some with crust. An incision and drainage procedure was performed on a clinically suggestive HS nodule under the chin. Doxycycline was restarted with a subsequent plan to start Humira if the postoperation course was uneventful.

The patient eventually underwent surgery for treatment of pericolic abscess, specifically laparoscopic mobilisation of the splenic flexure, open partial colectomy with an en bloc resection of a partial thickness abdominal wall with colorectal anastomosis, debridement of the abdominal wall fistula and an appendectomy. Postoperation diagnosis was noted to be an inflammatory mass of the sigmoid colon and the left abdominal and pelvic sidewall, with colocutaneous fistula.

OUTCOME AND FOLLOW-UP

Surgery went well with no significant adverse events. Abnormal growth of *Actinomyces* and *Poststreptococcus* was cultured on the specimen of the colic fistula tract. The patient was treated immediately with amoxicillin/clavulanate for 4 weeks, and will continue with this antibiotic regimen for another 6 months.

However, he has not been able to follow up in the Dermatology clinic since the incision and drainage procedure because of his extensive work up and surgery for abdominal pain.

DISCUSSION

HS, also known as acne inversa, is a chronic inflammatory disease that occurs in terminal hair follicles in regions of the skin with apocrine glands.⁶ HS is often part of the follicular occlusion triad presenting with dissecting cellulitis of the scalp and acne conglobate.^{1 2 7} Other associations include pilonidal disease, as noted in our patient, along with Crohn disease, obesity and smoking.^{1 2 7} As noted in our patient, concurrent HS, with neutrophilic dermatosis, inflammatory acne and dissecting cellulitis of the scalp, has been previously reported.⁸

Neutrophilic dermatoses exhibit an inflammatory infiltrate with mature polymorphonuclear leucocytes and neutrophil predominance.⁹ It has been shown that interleukin-17 (+) cells are increased in lesional and perilesional skin of HS.^{10 11} These innate immune cells are involved in the inflammatory process of HS.^{10 11} The large number of infiltrating neutrophils, particularly during the advanced stages of disease, explains how HS can be included in the spectrum of neutrophilic dermatoses.¹¹ For this reason, both of these conditions may be associated as autoinflammatory conditions.¹¹

The finding of *Actinomyces* growth with HS has been reported previously in a male patient with recurrent lesions of acne inversa in the axilla. For this reason, it is important to treat possible infections before starting immunosuppressive treatment for HS.¹² *Actinomyces* has also been previously reported in the setting of diverticular disease and/or abdominal mass.^{13–15}

Various treatment options exist for HS. HS can be treated with intralesional corticosteroids for isolated lesions. For diffuse disease, topical and systemic antibiotics are widely used. Severe HS can be treated with oral retinoids, oral steroids and hormonal therapy. Surgery as treatment involves excising affected regions that have hair, with or without grafting, as seen in our patient, as well as laser ablation.^{2 16}

Since HS occurs due to inflammation with or without subsequent infection, tumour necrosis factor- α (TNF- α) may be involved, as it can be seen in various dermatologic, gastrointestinal and rheumatic disorders. Adalimumab and infliximab are TNF- α inhibitors that are frequently used to treat HS.¹⁷ Adalimumab has previously demonstrated efficacy in the management of HS by decreasing the number of affected regions, decreasing drainage from affected body parts, minimising erythema, resolving pain and decreasing axillary flocculence. For these reasons, and owing to its being the only FDA approved medication for HS, adalimumab was selected as a treatment option for our patient.^{2 17 18}

As mentioned in the case history, the colonoscopy findings in our patient were consistent with diverticular disease. Inflammation is associated with symptomatic diverticular disease and complications of diverticular disease.¹⁹ This increase in inflammation is due to chronic lymphocytic infiltration, active neutrophilic infiltrate and an enhanced expression of TNF- α .^{20–22} In addition, ongoing histological inflammation is associated with an increased risk of recurrent diverticulitis.²³ Thus, in the case of our patient, the diverticular disease could be related to his skin condition of HS with chronic inflammation.

As previous studies suggest, patients with HS have also been diagnosed with various other inflammatory skin comorbidities. To the best of our knowledge, this patient is one of the few with the comprehensive diagnoses of HS, neutrophilic dermatoses and diverticular disease. Although difficult to treat, various medical and surgical options exist to improve the severity of these conditions and implement effective management. Further research will delineate the exact mechanisms associated with these disorders and thus help guide management strategies.

Learning points

- ▶ Hidradenitis suppurativa (HS) is associated with neutrophilic dermatoses, both of which often present together.
- ▶ Although not commonly reported, HS may occur with symptoms and findings of diverticular disease.
- ▶ Pursuing a colonoscopy for further investigation of diverticular disease is a helpful option for patients who present with gastrointestinal symptoms while suffering from HS.

Contributors KD contributed to chart review, data collection, manuscript writing and manuscript submission. MMD contributed to chart review, data collection, manuscript writing and editing, and manuscript submission. MG contributed to manuscript editing and review, and manuscript submission.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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