Severe Hidradenitis Suppurativa Treated With Adalimumab

Danielle K. Moul, MD; Neil J. Korman, MD, PhD; University Hospitals of Cleveland (Drs Moul and Korman) and Case Western Reserve University (Dr Korman), Cleveland, Ohio

The Cutting Edge: Challenges in Medical and Surgical Therapeutics

REPORT OF A CASE

A 67-year-old white man with a 20-year history of hidradenitis suppurativa (HS) presented for treatment of painful purulent draining sinuses, cysts, and nodules involving his ears, axillae, buttocks, and groin. His medical history was notable for inflammatory bowel disease, which had been treated with a total colectomy in 1971. Prior treatments for his HS included multiple courses of oral antibiotics, surgical resection of the buttocks and axillae, and radiation therapy to his left ear in an attempt to improve the swelling and anatomical disfigurement that were impairing his auditory function. Cultures from his left ear were positive for *Escherichia coli*. At the time of referral, he was being treated with augmentin (875 mg twice a day) for his HS and associated left otitis externa, otitis media, and mastoiditis. This therapy yielded mild improvement, but the patient continued to have significant pain, drainage, and hearing impairment.

Physical examination revealed a hypertrophic, edematous, erythematous left earlobe, with draining sinuses obstructing the external auditory canal and similar but less severe findings involving the right earlobe and retroauricular region. Both axillae were erythematous and tender, with purulent draining sinuses and hypertrophic scarring from past surgical excisions and inflammation. The groin showed erythema and multiple draining sinuses, with dissection of the right scrotum revealing visible connective tissue. The buttocks had 2 large surgical defects down to the level of the gluteal muscle, with perianal erythematous, purulent, draining fistulae.

SOLUTION

Previous reports of successful treatment of HS with intravenous infliximab in 10 patients prompted us to prescribe a regimen of subcutaneous adalimumab (Humira; Abbott Laboratories, Abbott Park, Ill), consisting of 40-mg injections every other week. Before treatment was initiated, the patient underwent purified protein derivative testing, a complete blood cell count, a chemistry panel, an antinuclear antibody panel, and chest radiography. The results of all screening tests were normal except for a slightly elevated white blood cell count (13.8×10^6/µL), with a neutrophil predominance, and an elevated erythrocyte sedimentation rate, which were likely related to the patient's HS. After 1 injection, the patient reported significant improvement, with decreased drainage from all sites as well as improvement in his auditory function. After 1 month of therapy, he had minimal erythema, no notable drainage from his ears or axillae, and resolution of his pain. At the 4-month follow-up visit, he showed continued improvement with decreased drainage from all sites as well as improvement in his auditory function. After 1 month of therapy, he had minimal erythema, no notable drainage from his ears or axillae, and resolution of his pain. At the 4-month follow-up visit, he showed continued improvement with the every-other-week dosing regimen, with no drainage from his axillae, ears, or retroauricular region and significantly decreased drainage in his groin and perianal region (Figure 1 and Figure 2).

COMMENT

Hidradenitis suppurativa is a common condition that can be very difficult to treat. Therapeutic results are often disappointing because targeted therapies have yet to be defined. Standard therapies include intralesional corticosteroids for isolated lesions, long-term use of topical antibiotics such as clindamycin, and systemic antibiotics chosen based on the results of bacterial cultures. Treatments used in patients with more recalcitrant disease include oral retinoids, hormonal therapy, oral steroids, and, more recently, infliximab. Surgical therapy for patients includes excision of affected hair-bearing areas, with or without grafting, and ablative laser therapy.

Our patient had been treated with numerous courses of oral antibiotics, aggressive surgical resection, and radiation therapy to his left ear, without improvement, and continued to have active persistent disease. He had severe disease that had resulted in anatomical abnormalities, including nodules, cysts, fistulae, and sinuses, ultimately obstructing his left auditory canal and impairing his hearing. Our challenge was to find a safe and effective therapy that would control our patient's disease and, in particular, improve his auditory function.
Inflammation of the scalp, and pilonidal cyst. The prevalence of HS is estimated at 4.1%, with a female predominance. The disease typically presents in postpubertal individuals with symptoms of discomfort and/or pruritus associated with a tender papule or deeper-seeded nodule. The nodule may resolve but often can recur in groups, which can lead to abscess formation. The lesions often heal with fibrosis and dermal contractures, which can result in scarring. Sinus tracts are common in more advanced disease. The disease involves apocrine skin with a predilection for the intertriginous areas, often involving the axillae, groin, perineum, and inframammary and retroauricular regions. Rare complications of HS include fistula formation involving the bladder, urethra, peritoneum, or rectum and squamous cell carcinoma in patients with chronic scarring disease.

Our patient had a severe case of HS, for which numerous aggressive therapies had failed. Given the 10 recent reported cases in which patients with HS successfully responded to infliximab, a chimeric monoclonal antibody directed against tumor necrosis factor (TNF), we attempted a trial of adalimumab, a fully human monoclonal antibody directed against TNF-α. We chose adalimumab over infliximab because of the convenience of home administration. The patient lives about an hour away from our hospital and is able to give himself injections every other week without having to travel a long distance for an intravenous infusion. He had a prompt and dramatic response to his initial injection of adalimumab and continues to improve gradually on a regimen of injections every other week. Our plan is to slowly taper the frequency of adalimumab therapy to reach a dosing schedule that maintains an excellent clinical response and minimizes the cumulative exposure to adalimumab.

Although the pathogenesis of HS is not well understood, successful case reports of patients with HS responding to treatment with infliximab, which targets TNF, suggest that there is an inflammatory component. These findings are also supported by the observation that treatment with systemic corticosteroids will usually lead to rapid improvement in disease activity. Further research is necessary to establish anti-TNF therapy as a treatment option for patients with severe HS.

Adalimumab is not without associated risks. Its safety profile is based on the results of placebo-controlled trials for its approved indication, rheumatoid arthritis. It has a black box warning recommending evaluation and treatment for latent tuberculosis because 13 cases of tuberculosis, many of which were disseminated or extrapulmonary, were reported within the first 8 months of therapy in clinical trials. Serious infections have occurred in patients who were receiving adalimumab therapy, many of whom were also receiving concomitant immunosuppressive therapy. The incidence of serious infections was 0.04 per patient-year in the adalimumab group and 0.02 per patient-year in the placebo group. The overall incidence of infection, which consisted mainly of upper respiratory infections, bronchitis, and urinary tract infections, was 1 per patient-year in the adalimumab group and 0.9 per patient-year in the placebo group.

Long-term data are lacking regarding the potential increased risk of malignancy due to TNF-α inhibition with the use of adalimumab. To date, clinical trials have shown no increased risk of solid tumors in patients receiving adalimumab therapy for rheumatoid arthritis (standard incidence ratio, 1.0) compared with the general population. However, the standard incidence ratio for lym-
phoma in adalimumab-treated patients with rheumato
toid arthritis was 5.4 times higher than in the general population.\textsuperscript{10} Given the known increased risk of lymphoma in patients with rheumatoid arthritis (which di-
rectly correlates with rheumatoid severity) when com-
pared with the general population,\textsuperscript{11,12} it is unclear whether there is an increased attributable risk of lymphoma due to adalimumab exposure. Because of the potential in-
creased risk of malignancy and the lack of long-term data,
the Food and Drug Administration has recommended con-
tinued safety monitoring in patients who are being treated with anti-TNF agents.

Other possible adverse effects of treatment with an anti-
TNF agent such as adalimumab include demyelinating disorders, congestive heart failure, and autoimmu-
nity.\textsuperscript{10} However, because the data available are limited, the relationship and incidence of these potential ad-
verse effects cannot be adequately assessed at this time. It is therefore the responsibility of the practitioners to select appropriate patients for adalimumab therapy on a case-by-case basis.

In addition to the potential adverse effects, cost must be considered. Every-other-week injections of adal-
imumab cost approximately $16 000 per year. Our pa-

tient received approval from his insurance company but still has a 20% copayment.

Adalimumab is currently being investigated as a po-
tential therapy for other conditions such as Crohn disease,\textsuperscript{13} psoriasis, and psoriatic arthritis.\textsuperscript{16} To the best of our knowledge, this is the first report of HS being successfully treated with adalimumab. Given its strong anti-inflammatory properties, along with its convenient every-other-week subcutaneous dosing regimen, adali-

mumab may represent a therapeutic option for patients with severe HS. However, additional experience and research are needed before adalimumab’s true therapeutic benefit for the treatment of severe HS can be assessed.

Accepted for Publication: August 11, 2005.
Correspondence: Neil J. Korman, MD, PhD, Depart-
ment of Dermatology, Case Western Reserve Uni-
versity, University Hospitals of Cleveland, 11100 Euclid Ave, 
Cleveland, OH 44106 (njk2@case.edu).

Author Contributions: Study concept and design: Moul and 
Korman. Acquisition of data: Moul and Korman. Analysis 
and interpretation of data: Moul and Korman. Drafting of 
the manuscript: Moul and Korman. Critical revision of the 
manuscript for important intellectual content: Moul and Kor-
man. Administrative, technical, and material support: Moul 
and Korman. Study supervision: Korman.

Financial Disclosure: Dr Korman has served as an in-
vestigator and a speaker for Abbott Laboratories.

References

1. Jemec GBE, Heidenheim M, Nielsen NH. The prevalence of hidradenitis suppura-
3. Adams DR, Gordon KB, Devenyi AG, Ioffreda MD. Severe hidradenitis suppurativa 
5. Katsanos KH, Christodoulou DK, Tsianos EV. Axillary hidradenitis suppurativa 
2002;97:2155-2158.
6. Sullivan TP, Welsh E, Kerdel FA, Burdick AE, Kirchner RS. Infliximab for hidrad-
8. Martinez F, Nos P, Beniloch S, Ponce J. Hidradenitis suppurativa and Crohn's dis-
12. Baecklund E, Ekobom A, Sparén P, Feltelius N, Klareskog L. Disease activity and 

cancer risk in patients with rheumatoid arthritis: nested case-control study. 
13. Papadakis KA, Shaye OA, Vasiliauskas EA, et al. Safety and efficacy of adali-
mumab (D2E7) in Crohn's disease patients with an attenuated response to 
14. Chew AL, Bennett A, Smith CH, Barker J, Kirkham B. Successful treatment of 
151:492-496.