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EXTENSIVE STASIS ULCERATIONS: REPORT OF A CASE

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Ulcerations of the lower extremities have many causes, most of which are secondary to venous stasis. Ulcerations of this etiology vary in extent from small denudations to widespread deep destruction of tissue. The following report of a case of far advanced lesions illustrates how much improvement may result from conservative therapy. Although complete healing had not occurred before the patient died from other causes, the degree and rapidity of improvement is noteworthy.

Case Report:

A 59-year old, white female with rheumatoid arthritis was admitted to the Dermatology In-Patient Department on July 8, 1960, because of large, tender, foul-smelling ulcerations on both legs.

The patient's history showed that during the previous six years there was gradual onset of swelling and tenderness of the knees, which prevented normal activity, and soon after she could not walk unassisted. At least three years before admission a "pimple"; which healed only partially, developed on the lateral surface of the left leg. At approximately the same time she excoriated a small lesion on the right leg. Homemade dressings were applied to the ulcerations which persisted and enlarged.

During the eight months before admission the patient remained either in a chair or in bed and had to be carried about. She stated that it was at this time the ulcers developed a foul odor. Pain became increasingly severe, and on insistence of her family she sought medical care.

Physical Examination:

On admission she was a markedly obese woman in severe pain. (BP: 150/80; Pulse: 80/minute; Temperature 100 F) Four days after admission her weight was 229 pounds and height five feet six inches. Oral hygiene was extremely poor with numerous missing and carious teeth. The abdomen was protuberant, the skin relaxed at the umbilicus with a palpable defect in the wall approximately 12cm in diameter. Both knee joints were swollen and limited in motion. There were deformities and limitation of motion of the joints of the hands and wrists bilaterally. Enlarged inguinal nodes were palpable bilaterally. Both lower legs had large, deep, foul-smelling, tender ulcerations. On the right leg the ulceration occupied most of the middle third of the calf and contained two "pegs" of remaining subcutaneous tissue with overlying intact epithelium. The left leg had a large ulceration posteriorly as if a huge piece of tissue had been bitten out. In addition both legs had numerous satellite ulcerations measuring one to six cm in diameter. The bases of all lesions contained greenish purulent material. The ulcers were three to eight cm deep with tensely edematous overhanging edges (Fig. 1-6). Any manipulation of the ulcers elicited extreme pain.

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Figures 1 and 6. Photographs taken July 8, 1960. Extreme degree of ulceration and edema. Note small islands of remaining epithelium which are actually situated on top of "pegs" of tissue. These stalagmite-like "pegs" are actually 8 cm. above the base of the ulcer.
Figures 2 and 7. Photographs taken July 21, 1960. Appearance of lower extremities after two weeks therapy. Note that most of the edema has subsided, flattening the edges of the ulceration. The bases are free of necrotic material.
Initial laboratory studies showed hemoglobin 9.6 gm/100 ml; urea nitrogen 11 mg/100 ml; blood sugar 155 (later recorded as 205). VDRL was non-reactive. Serum protein electrophoretic patterns are illustrated (Fig. 11). Biopsy of the lesions showed non-specific ulceration.

The lesions were vigorously irrigated and cleansed frequently during the first three days of hospitalization. Pressure gradient dressings with Unna boots were then applied and the dressings changed as often as necessary, which early in the treatment was approximately every four days, but later was weekly. Adjunctive therapy consisted of diuretics, high protein diet (P-60 F-55 C-120) and complete bed rest with elevation of the lower extremities.

After four months of hospitalization, the patient's weight was 177 and hemoglobin 12gm. She was discharged and followed at weekly intervals in the Dermatology Out-Patient Department. The accompanying photographs show the change in character and gradual healing of the ulcerations (Fig. 1-10).

After seven months of treatment the patient developed symptoms of renal insufficiency, worsened rapidly, was readmitted to the hospital and died approximately two weeks later.

COMMENTS

Extensive stasis ulceration as illustrated by this case presents three major problems: First, such ulcers are painful. This patient complained of severe pain with either active or passive motion of her legs. Instrumentation, irrigation, or even gentle palpation of the eroded surfaces was extremely distressing to her. Any sudden movement of air against the lesions caused pain, and the patient had used make-shift dressings at home to alleviate this.

Second, is the problem of edema and self perpetuation of the lesions. Before hospitalization this patient spent much of her time sitting upright in a chair, a position which placed the legs under extreme gravitational pressure. Boggy, edematous, anoxic tissue will not heal normally, and progressive necrosis occurs. The excessive collection of extravascular fluid is conducive to further edema and ulceration.

The third problem is that of continual loss of fluid and serum (protein) from the denuded regions. This adds to the general debility of the patient.

Initial treatment of this patient consisted of application of pressure gradient therapy which has been previously described,12 elevation of the legs, and oral diuretics to reduce edema. Gentle cleansing of the lesions removed superficial necrotic tissue and application of firm pressure gradient dressings promptly made the patient more comfortable. The involved regions were then covered and splinted, reducing pain. The dressings were applied firmly enough to prevent edema and to allow reepithelialization.

A study of the serum protein levels is of interest. At the time of admission but prior to active treatment, the electrophoretic pattern showed a reduction in
Figures 3 and 8. Photographs taken August 11, 1960. Bases of lesions are flush with surrounding skin. Epithelium is growing from the islands as well as borders of the ulcerations.
Figures 4 and 9. Photographs taken September 8, 1960. Marked reduction in size of ulcerations has occurred. Some smaller lesions have cleared completely.
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COMPOSITE CHART OF ELECTROPHORETIC PATTERNS

The serum albumen protein improved markedly with the applications of dressings; normal serum protein levels were maintained following this. Patterns were interpreted by Dr. Donald G. Remp, Department of Laboratories.

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total protein and albumen. The second pattern, taken five days after application of dressings, revealed a significant elevation of the total protein and albumen fractions. This level is considered abnormally high; subsequent determinations are within normal limits. The third albumen determination is higher than expected and may include portions of the gamma globulin fraction in this determination.

We believe that this early rise to high and later reduction to normal levels may be comparable to the “Staub-Traugott” effect seen in diabetic individuals. In diabetes there is a fall to lower than normal blood sugar level when the patient is given repeated small amounts of sugar. In other words there is evidence that an over-active physiologic process may occur in certain pathologic situations. In the case reported here the abnormal loss of serum protein was partially controlled by counter-pressure dressings while the body continued a greater than normal production of serum proteins. With partial correction of the protein losing process, i.e., occlusive dressings to the ulcerations, over-active production of serum protein continued for a short time before reverting to a normal level. A more familiar example of this effect is the formation of a bone callus larger than normal during fracture healing.

We are unaware of previous reports of such an effect expressed through serum protein levels.

SUMMARY
A case of extensive ulcerations of the lower extremities is presented to show what may be achieved with conservative therapy abetting the normal healing processes. An interesting side effect of serum protein levels was noted in this case.

REFERENCES