Lumbar Sympathectomy in the Treatment of Hypertensive Ischemic Ulcers of the Leg (Martorell's Syndrome)

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Hypertensive ischemic ulcer (Martorell's syndrome) is an infrequent complication of hypertensive disease. The ulcers appear on the leg as necrotic areas. The pathogenesis is described as ischemia resulting in local gangrene due to obliterating lesions in the arterioles. Actual pathological sections were studied which showed hyaline degeneration between the endothelium and internal elastic lamina, and these changes are similar to those found in other localities in hypertensive patients. Lumbar sympathectomy results in healing of the ulcers.

In some patients with diastolic arterial hypertension, painful ulcers appear on the anterolateral aspect of the leg. These are called hypertensive ulcers and the condition is termed Martorell's syndrome because, in 1945, he first described the condition and presented four cases.\(^1\) Valls Serra reported the first case in a man.\(^2\) Hines and Farber of the Mayo Clinic confirmed the existence of these ulcers and published additional clinical cases.\(^3\) Oller Grosiet devoted a paper to this syndrome\(^4\) and Wright described the second case in a male subject.\(^5\) Recently several papers have confirmed the existence, etiology and clinical characteristics of the hypertensive ulcer.\(^6\)\(^-\)\(^10\) Oller-Crosiet and myself jointly reported one case, in 1953.\(^10\)

The ulcer is due to ischemia caused by obliterating lesions of the small arterioles. These lesions are similar to those found in other localities in essential hypertension. The most common vascular changes are an increase in the thickness of the arteriolar wall and a decrease in the diameter of the lumen. The lesions are specific to hypertensive disease, with subendothelial hyalinosis in some cases, or thickening and an increased number of nuclei in the media in others.

The lesions may be initiated as the result of slight local trauma or even without it. Usually the first symptom is a painful red patch in the skin, which soon becomes blue and purpuric. Later, superficial necrosis develops, and finally ulceration appears which is often bilateral and symmetrical. The ulcer is located on the anterolateral aspect of the leg at the union of the lower and middle thirds (fig. 1). There may be an ulcer on one side and a simple pigmented spot on the other side. The ulcer becomes sensitive and painful; and the pain is not relieved by rest in bed. There is no history of thrombo- phlebitis, and there are no varicose veins. The dorsalis pedis arteries are palpable.

The diagnosis of hypertensive ulcer is made when ulceration such as is described above coincides with diastolic arterial hypertension in the arms and arterial hypertension in the legs, without clinical evidence of arterial occlusion or disturbance of the venous circulation.

Lumbar sympathectomy in the treatment of hypertensive ulcer is useful in properly selected patients.

Case Reports

Case 1. A woman, 59 years old, first seen in June 1954, had been known to have high blood pressure for at least five years. About one year after hypertension was diagnosed, an ulcer developed on her left leg. Six months before the consultation, another ulcer developed on the anterolateral aspect of the left leg. The latter ulcer was painful and resistant to medical treatment. Pain was not relieved by bed rest. The lesion started as a small, bluish-red flat spot in the skin. A hemorrhagic bleb developed soon and broke down into a superficial ulcer which gradually became larger and very painful.

Examination of the lower extremities revealed scars of the former ulcer on the right leg, and, on the left leg, an open ulcer on the anterolateral aspect.
at the union of the lower and middle thirds of the leg (fig. 1). The blood pressure was 270 mm. Hg systolic and 140 mm. Hg diastolic. The heart was enlarged. There was no evidence of varicose veins or of chronic venous insufficiency. Peripheral arterial pulsations were all normal.

On July 1, 1954, under general anesthesia, the second, third and fourth sympathetic lumbar ganglia on the left side were removed and a Tiersch graft made. On Aug. 16, 1954, the ulcer was completely healed.

Case 2. On April 23, 1948, a woman aged 58 years entered the hospital suffering from diastolic hypertension and a very painful ulcer on the right leg. The ulcer was superficial, not excavated, and with hardened edges. It occupied the anterointerior aspect of the right leg at the union of the middle and lower third. No varices or arterial obliterations were detected. No edema was present. Below the knee oscillometry showed hypertension and hyperoscillometry. Arterial pressure in the arm 225/125; Marked aortic dilatation and hypertrophy of left ventricle were demonstrated radiologically.

On April 24, under general anesthesia, extirpation of the second, third and fourth sympathetic lumbar ganglia on the right side was done. On June 16, 1948, the ulcer was completely healed. On Sept. 29, 1948, the ulcer was still closed.

Later a similar and symmetrical ulcer developed on the other leg.

We are informed that later the patient had a cerebrovascular accident.

Case 3. On Dec. 2, 1946, a woman 55 years of age came to the outpatient department. For six months she had had a painful ulcer on her left leg and troublesome paresthesia in both legs. She was very nervous and anxious and had attacks of spontaneous weeping. Three years before she had a similar ulcer on the right leg. Examination showed an ulcer on the outer side of the left leg, located at the union of the middle and lower third. It was surrounded by a pigmented zone which was also present symmetrically, on the other leg.

Very slight edema was present. No disturbance of venous circulation and no arterial occlusion were detected. There was hypertension and hyperoscillometry in the lower limbs. Arterial pressure in the arm was 195/120. Supplementary laboratory examinations revealed nothing abnormal.

The diagnosis was left hypertensive supramalleolar ulcer. The treatment was left lumbar sympathectomy which was performed on Dec. 31, 1946. Following this procedure the ulcer became painless and its appearance changed rapidly. Local thermometry at the level of the big toe showed a difference of 4 °C. in favor of the operated side. Arterial pressure was lower. The patient's nervousness and emotional instability improved. A daily injection of splenic hormone was administered. Local treatment consisted of simple aseptic measures. She was

**Fig. 1. Hypertensive ulcer of the lower extremities in a woman aged 59 years: A. Ulcer on the left lateral aspect. B. Symmetrical scar on the right lateral aspect.**
able to leave her bed in 12 days. The ulcer healed in 55 days.

Case 4. A woman 53 years of age, first seen in March 1953, had been known to have high blood pressure for at least 15 years. Hypertensive retinopathy with loss of vision in the left eye had preceded by six months a cerebrovascular accident. About four months before the consultation, a small, very painful, bluish flat spot developed on the skin of the right leg, and broke down into a superficial ulcer, which gradually became larger and very painful especially at night.

Examination showed two superficial ulcers a little proximal to the right lateral malleolus. Skiagram of the chest showed left ventricular enlargement and uncoiling of the aorta. Vision of the left eye had been lost. Hypertensive retinopathy, grade 3, was present on the other side. No varicose veins were present. The dorsalis pedis arteries were palpable.

Lumbar sympathectomy was performed on March 21, 1953. Later a Tiersch skin graft was made. The ulcer healed in two months and remained healed for 20 months.

Summary and Conclusions

The effects of lumbar sympathectomy in the treatment of hypertensive ulcer are presented.

Hypertensive ulcers are localized to the supramalleolar region, usually on the anterolateral aspect at about the junction of the middle and lower thirds of the leg. Ulceration is often bilateral and symmetrical. The ulcers produce much pain which is not relieved by rest in bed. Varicose veins and chronic venous insufficiency are absent. Peripheral arterial pulsation are usually normal.

Four cases from the Vascular Clinic of the Instituto Policlínico are presented.

Summario in Interlingua

Es presentate un reporto del effectos de sympathectomia lumbar in le tractamento de ulceres hypertensive.

Ulceres hypertensive es localisate intra le region supramalleolar, usualmente al aspecto antero-lateral approximativamente al junction del secunde tertio con le tertio inferior del gamba. Le ulceration es frequentemente bilaterale e symmetric. Le ulceres es dolorosissime e le patiente obtiene nulle alleviamento per affectar se. Varices e chronic insufficiencia venose es absent. Le pulsation arterial peripheric es usualmente normal.

Nos presenta 4 casos observate al Clinica Vascular del Instituto Polyclinico a Barcelona in Espana.

REFERENCES

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