Vasodepressor carotid sinus syncope

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Abstract

There have been few reports of vasodepressor carotid sinus syncope, as opposed to the cardioinhibitory type, and no definitive treatment has been described. A 58 year old man developed episodes of syncope after surgery and radiotherapy for a laryngeal tumour. The episodes were characterised by hypotension, sharp pain in the right neck, dizziness, and bradycardia. A temporary pacemaker failed to prevent the symptoms, but ephedrine and fludrocortisone produced substantial improvement.

Of the four types of treatment used in carotid sinus syncope, irradiation was ruled out because the patient had had irradiation before developing syncope, surgery was inappropriate because of the laryngeal tumour, and pacing failed. Combined drug treatment with a vasoconstrictor and plasma volume expander produced an improvement in symptoms but did not eliminate them.

Introduction

Published reports on the carotid sinus syncope describe patients with the cardioinhibitory type and its treatment with demand pacing. There are few reports of vasodepressor or mixed vasodepressor-cardioinhibitory types, and no definitive therapy has yet been elucidated for the vasodepressor or mixed types of carotid sinus syncope.¹ We describe here a patient with vasodepressor syncope whose symptoms were controlled by ephedrine and fludrocortisone.

Case report

The patient was a 58 year old white man who had had a total laryngectomy and right radical neck dissection in December 1981 for T₄N₂M₀ squamous cell laryngeal carcinoma, followed by radiotherapy (5000 rads). In August 1982, after two syncopal episodes, he was taken to hospital and was found to have marked bradycardia (38 beats/min) and hypotension (70-90/50 mm Hg) during a syncopal episode. Atropine 0.5 mg relieved the bradycardia and hypotension and a temporary pacemaker was inserted. He then experienced an episode of hypotension and unresponsiveness in spite of a paced heart rate of 80 beats/min. Spontaneous remission of symptoms occurred after three days.

A further syncopal episode occurred in January 1983. Physical examination showed tender induration of the right lateral and anterior neck area due to surgery and irradiation. Cardiovascular examination showed nothing abnormal. There was a right 12th cranial nerve paralysis and a right Horner's syndrome.

Computed tomograms of the neck showed bilateral retromandibular masses, which were larger on the right. Digital subtraction angiography showed encasement of the proximal right internal carotid, compromising the lumen by about 50%. An open neck biopsy showed squamous cell cancer.

The patient's radial arterial blood pressure was monitored directly. Over 10 days he had 53 episodes of bradycardia and hypotension. The pattern which emerged consisted of hypotension (systolic blood pressure dropping from 150-175 mm Hg to 60-70 mm Hg), a sharp pain in the right lateral neck radiating into the right supraorbital region, dizziness, bradycardia (heart rates dropping from a sinus rate of 75-97 beats/min to a junctional rate of about 40 beats/min), and syncope. Ephedrine, 25 mg four times a day, and fludrocortisone, 0.1 mg/day, were begun and produced substantial improvement.

Discussion

Four modes of treatment have been proposed for carotid sinus syncope: irradiation, surgery,^{2,3} pacing, and drugs.^{1,4} About two thirds of patients in one series treated with carotid sinus irradiation became asymptomatic. Our patient, however, developed carotid sinus syncope after having received radiation therapy.

Surgical procedures used are carotid sinus denervation³ and intracranial section of the glossopharyngeal nerve.² Carotid sinus denervation was considered not to be technically feasible in our patient because of the large ensheathing nature of the tumour, and glossopharyngeal nerve section was not recommended.

Demand pacing has become accepted as the treatment of choice in patients with the cardioinhibitory type of carotid sinus syncope. In the patient with a vasodepressor response, however, pacing does not relieve the symptoms. Morley *et al* cited four patients with vasodepressor responses in whom either ventricular or atrioventricular pacing failed to relieve symptoms.⁵

Vasoconstrictor drugs (ephedrine) and fludrocortisone (a salt retaining steroid) have been tried in vasodepressor or mixed types of carotid sinus syncope. But Patel *et al* reported two cases in which 25 mg of ephedrine every six hours failed to control the vasodepressor manifestations.¹ Fludrocortisone may be tried to increase blood volume. Walter *et al* reported one patient who was asymptomatic for one year while taking fludrocortisone acetate 0.1 mg/day.⁶ Combined therapy seemed effective in our patient but did not completely eliminate the symptoms. There was a significant decrease in the frequency of syncopal episodes. The patient reported a decrease in the intensity of the dizziness and in the duration of the episodes. Combined vasoconstrictors and plasma volume expansion provided the best therapeutic result in a situation where only palliative management was possible.

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