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THE PILL AND THE THORACIC OUTLET AND BILATERAL CARPAL TUNNEL SYNDROMES

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A patient is described who had the simultaneous occurrence of both bilateral carpal tunnel and thoracic outlet syndromes following the use of contraceptive pills for four consecutive years.

Both the bilateral carpal tunnel and the thoracic outlet syndromes have been previously reported in association with edematous states as separately occurring entities. Presented here is a case of simultaneous occurrence of both these syndromes in a young woman who had been taking birth control pills for four consecutive years.

CASE REPORT

A 22-year-old, right-handed woman, employed as a secretary-typist, presented on July 22, 1980 with a one-week history of bilaterally recurring complaints of hand paresthesias radiating up both arms followed by coldness, aching, and imperceptible and uncontrollable tremors of her hands. Her symptoms usually began within minutes after she began typing, and slowly abated within 10 to 15 minutes after she was forced by discomfort to discontinue typing and hold her arms at her sides. On further inquiry she described, unilaterally, the same symptoms over the same period of time on awakening each morning. She stated that she slept on her abdomen with one arm at her side and the other hyperabducted at the shoulder. On recollection, she was aware that the unilateral arm symptoms following sleeping occurred in the hyperabducted arm, and disappeared slowly after the involved arm was placed at her side.

She had previously enjoyed excellent health, had been taking birth control pills (norgestrol and ethynyl estradiol) during the preceding four years without problems, and had gained 12 pounds during the preceding six months; her symptoms began exactly seven days prior to the onset of her menses (July 22, 1980). Raynaud's phenomena were denied.

Physical examination revealed an alert, intelligent, anxious, and moderately obese female with a weight of 148 pounds and height of 65 inches. Blood pressures were 116/84 mmHg with the extended arm at the side, and 90/60 mmHg with extended arm hyperabducted at the shoulder; and on the left 120/90 and 96/64 mmHg with the arm in the same respective positions. Adson's testing was bilaterally positive, duplicating her hand claudication symptoms, and associated with the appearance of parvus type radial pulse waves which became normal with her arms at her sides. The

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wrists, bilaterally, were normal to inspection and palpation, and exhibited positive Phalen's, Tinel's, and palmar prayer signs without evidence of either thenar or hypothenar weakness or atrophy. Allen testing was normal bilaterally.

X-rays of the cervical spine were normal, and specifically revealed no signs of cervical ribs or large lower cervical transverse processes. The results of following studies were normal or negative: Urinalysis, complete blood count, blood urea nitrogen (BUN), creatinine, glucose electrolytes, liver function, blood lipids (cholesterol, high density lipoproteins, triglycerides), serum albumin and total proteins, serum calcium, C-reactive protein, antistreptolysin-O titer, fluorescent antinuclear antibody, latex fixation, and thyroid function (T_3 resin uptake, free thyroxine by radioimmunoassay, and calculated free T_4).

The patient was given a single oral 80 mg dose of furosemide, and thereafter hydrochlorothiazide 50 mg, orally twice daily for one week. Within 24 hours, her symptoms were dramatically improved. When re-evaluated on July 30, 1980, she was asymptomatic except for minimal complaints and physical findings of the carpal tunnel syndrome on the right. Although there were no complaints referrable to the thoracic outlet syndrome, physical examination again documented findings of partial thoracic outlet vascular obstruction. The right carpal tunnel was injected with methylprednisolone acetate. Within two weeks the patient was asymptomatic. She was instructed to take the previously prescribed hydrochlorothiazide 50 mg twice daily should her symptoms recur. When interviewed on August 29, 1980, she was asymptomatic but gave the identical history of onset and recurrence of all her symptoms, but to a lesser degree, exactly one week prior to the onset of her August menses.

The patient's symptoms totally disappeared by the third day of her menses. When questioned regarding her diuretic, she admitted to having only taken 50 mg daily, rather than the twice-daily schedule which had been suggested.

DISCUSSION

Both the thoracic outlet[1-3] and the carpal tunnel[4] syndromes may be looked upon as entrapment neuropathies. Vascular compromise of the subclavian artery is frequently associated with the thoracic outlet syndrome. Further, unlike the thoracic outlet syndrome, the bilateral carpal tunnel syndrome is frequently associated with systemic disease.[4]

The etiology of these syndromes occurring simultaneously in the patient described is not completely clear. Her history would suggest the use of birth control pills,[5] and the premenstrual state, both of which contribute to an edematous state.

Although not objectively documented in this case, it was suspected that the common denominator of the patient's problems was edema within the carpal tunnel and within the right compartments of the thoracic outlet.

The patient's intermittent claudication while typing was most likely due to tensing of her neck's scalene anticus muscles about edematous soft tissues causing bilateral, incomplete subclavian artery compression, and pressure neuropathy of the inner cords of the brachial plexi. The dramatic, early, and nearly complete response to diuresis would tend to support the proposed pathogenesis of her symptoms.

CONCLUSION

The case described herein is at once fascinating and unusual because of the acute onset bilaterally of complaints and findings consistent with both the carpal tunnel syndrome and the thoracic outlet syndrome in an otherwise healthy young woman using birth control pills.

The diagnoses were established only by detailed history and physical examination. Both syndromes quickly resolved when treatment with diuretics was extended the patient for a short period of time premenstrually.

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