

## Paralysis of phrenic nerve due to enlargement of left atrium

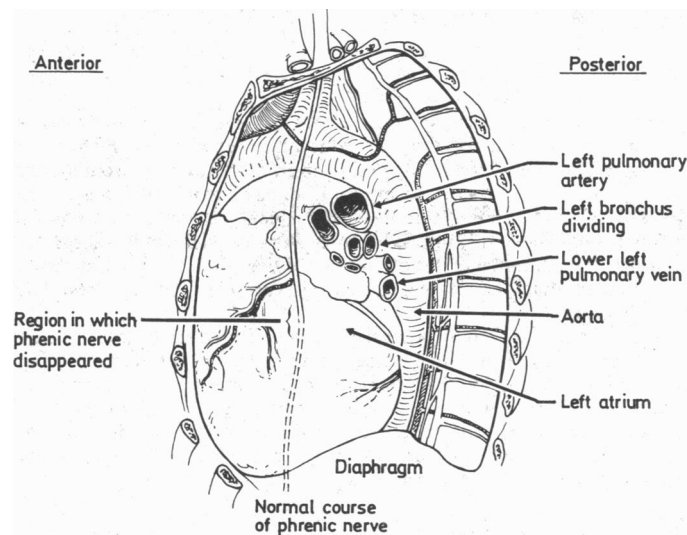
Paralysis of the phrenic nerve may be idiopathic or due to bronchogenic carcinoma, tuberculosis, or mediastinal tumours.<sup>1</sup> We report a case due to enlargement of the left atrium.

### Case report

A 68 year old man was admitted for investigation of a paralysed left hemidiaphragm that had been noted on routine chest radiography. He had a cough productive of a small amount of clear mucoid sputum, moderate exertional dyspnoea, and occasional wheeze but no other respiratory symptoms of note. His medical history included a shrapnel injury sustained in the war, myocardial infarction, and peripheral vascular disease. He had no history of rheumatic fever or tuberculosis. He was receiving oxprenolol, chlorthalidone, potassium chloride, and isoxuprine hydrochloride resinate (a peripheral vasodilator).

Examination showed no finger clubbing, lymphadenopathy, stridor, or obstruction of the superior vena cava. His pulse was 108 beats/minute in sinus rhythm and blood pressure 170/90 mm Hg. Jugular venous pressure was not raised, and heart sounds were soft and difficult to hear because of generalised bilateral expiratory rhonchi. Percussion note was dull at the left base, and inspiration was diminished. The neck and the abdominal and central nervous systems were normal. Chest radiography showed an enlarged left atrium and raised left hemidiaphragm, which was found to be paralysed on sniff testing during fluoroscopy. Bronchoscopy showed no abnormality, and both vocal cords moved symmetrically. Sputum was normal on cytological examination and gave negative results for acid fast bacilli. Erythrocyte sedimentation rate; full blood count; serum concentration of urea, electrolytes, and glucose; and results of liver function tests were normal. Tests for latex-rheumatoid antibody and antinuclear factor were negative, and viral studies showed no rising titre. Electrocardiography showed evidence of p mitrale.

While in hospital he developed a right hemiparesis and aspiration pneumonia and died. Necropsy showed pronounced mitral stenosis (mitral valve circumference 60 mm). The heart was enlarged (420 g), as were the left ventricle and left atrium (diameter about 80 mm; normal 19-40 mm). The lungs showed evidence of aspiration pneumonitis and pulmonary congestion but not of bronchial carcinoma, tuberculosis, mediastinal tumour, or appreciable lymphadenopathy. The left hemidiaphragm was atrophic. The left phrenic nerve was not identifiable in the region adjacent or distal to the left atrium (figure), but the lowest identifiable part was normal on histological examination. The brain showed evidence of cerebral infarction.



Anteroposterior section of thoracic cavity at necropsy showing enlarged left atrium and normal course of phrenic nerve.

### Comment

Paralysis of the phrenic nerve resulting in a paralysed hemidiaphragm may have various causes including tuberculosis (when it may be iatrogenic after crushing of the phrenic nerve),<sup>2</sup> bronchial carcinoma, poliomyelitis, herpes zoster,<sup>3</sup> mediastinitis, diphtheria, tetanus antitoxin, lead poisoning, and trauma; it may also be idiopathic.<sup>4</sup> Pressure on the phrenic nerve may result from a thoracic aortic aneurysm.<sup>5</sup> An enlarged left atrium is known to cause recurrent

paralysis of the left laryngeal nerve, but we do not know of any report of its causing paralysis of the phrenic nerve, although the anatomical relation of the two structures makes it easy to see how this can happen. As enlarged left atria are common it is surprising that this has not been recorded: possibly some unrecognised factor also contributed in this case. Paralysis of the phrenic nerve due to an enlarged left atrium may be more common than previously thought.

We thank Miss A Scott for typing the manuscript.

<sup>1</sup> Crofton J, Douglas A. *Respiratory diseases*. Edinburgh: Blackwell Scientific Publications, 1981.

<sup>2</sup> Gupta SK. Spontaneous paralysis of the phrenic nerve with reference to chronic pulmonary tuberculosis. *Br J Dis Chest* 1960;**54**:283.

<sup>3</sup> Brostoff J. Diaphragmatic paralysis after herpes zoster. *Br Med J* 1966; **ii**:1571.

<sup>4</sup> Douglas BE, Clagett OT. The prognosis in idiopathic diaphragmatic paralysis. *Diseases of the Chest* 1960;**37**:294.

<sup>5</sup> Sanguinetti AA, Galzerano DA. Síndrome diafragmático por aneurisma de la aorta torácica. *Revista de la Asociación Médica Argentina* 1943; **57**:413.

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## Interaction between oral contraceptives and griseofulvin

The Committee on the Safety of Medicines in the United Kingdom and the Netherlands Centre for Monitoring of Adverse Reactions to Drugs have received a total of 22 reports of a possible interaction between oral contraceptives and the antifungal drug griseofulvin.

### Analysis of cases

Twenty women receiving long term oral contraception were reported to have experienced transient intermenstrual bleeding (15 patients; age range 17-42 years) or amenorrhoea (five patients; age range 17-44 years) in the first or second cycle after beginning treatment with griseofulvin (0.5-1.0 g daily). Unintended pregnancies were reported in two other patients.

Seven of the women with intermenstrual bleeding and one with amenorrhoea were using contraceptives containing less than 50 µg oestrogen. The patients with amenorrhoea were on average older than those with bleeding (30.4 years as against 26.0 years), although the difference was not statistically significant. They were also taking a higher mean daily dose of griseofulvin (880 mg v 550 mg). Fourteen of the 20 women had received no other drugs, three had used drugs that are not known to interfere with oral contraceptives (miconazole ointment, grass pollen vaccine, tetanus vaccine), and in the other three cases details of concomitant drug use were not reported. Four women (two with intermenstrual bleeding, two with amenorrhoea) were re-exposed to griseofulvin and the original reaction recurred.

Of the two women with unintended pregnancies, one had used high dose oral contraception for 15 months and had been taking griseofulvin 500 mg daily for two and a half months. She had also received co-trimoxazole (dose not stated) for one week, beginning one month after starting griseofulvin, and had become pregnant in that period. The second patient had used an unspecified oral contraceptive and was taking griseofulvin and a combination of sulphonamides at the time of conception; no other data were reported.

### Comment

Intermenstrual bleeding, amenorrhoea, and pregnancy may occur spontaneously during the use of oral contraceptives. In our series, however, the temporal relation between beginning griseofulvin and the occurrence of bleeding anomalies, and especially the results of rechallenge with the drug in four patients, are strong evidence of interaction between the oral contraceptives and griseofulvin.