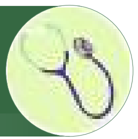

"Doc, can I still smoke my pipe?"

Jerzy K. Pawlak, MD, MSc, PhD; and T. J. Kroczak, BSc

Edward, 69, is a retired machinist who presents with a three-week history of a painful right foot (Figure 1) and claudication for some time in the left foot after walking less than one block.

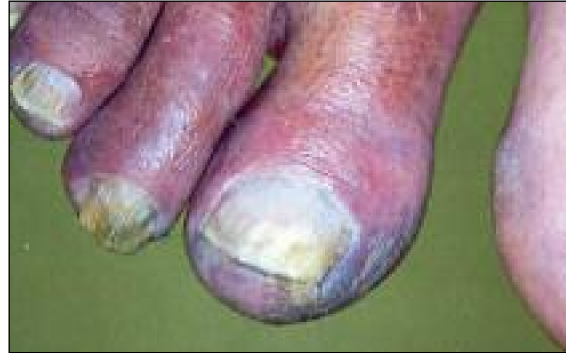

Figure 1. Painful right foot.

Medical history

Edward's medical history reveals:

- He has been hypertensive for the last five years
- He has a past history of hyperlipidemia and mild obesity
- He smoked 30 packs of cigarettes per year but stopped at the age of 49 and switched to five to six bowls of tobacco from his pipe daily
- He is a borderline diabetic
- He has not taken any medications for the last six months
- He denies any cardiac symptoms
- There is a possible old inferior MI visible by EKG
- His father had Type 2 diabetes and passed away at age 59 from a heart attack
- He does not have any allergies

Physical examination

Upon examination, the following is noted:

- Edward looks younger than his age
- There are no carotid bruits
- Bilateral wheezing in the chest is more marked during expiration
- His BP is 185/96 mmHg
- His heart rate is 88 bpm and regular
- There is no aortic abdominal aneurysm
- There are bilateral superficial femoral artery occlusions
- His right big toe is swollen with infected skin splits
- The distal foot is erythematous, but not too cold

Clinical investigations

Edward's clinical investigations show:

- Normal complete blood count
- Total cholesterol: 7.1 mmol/L
- LDL-C: 4.8 mmol/L
- Fasting glucose: 6.2 mmol/L
- Glycated hemoglobin (Hgb): 6.1% of the total Hgb

A right femoral angiogram (Figure 2a, 2b, 2c), chest x-ray (Figure 3) and CT scan of chest (Figure 3a) are taken.

What's your diagnosis?

a) Peripheral arterial disease (PAD) with right deep femoral artery occlusion and right lung mass

b) PAD with right common and deep femoral artery occlusion and right lung mass

c) PAD with right superficial femoral artery occlusion and right lung mass

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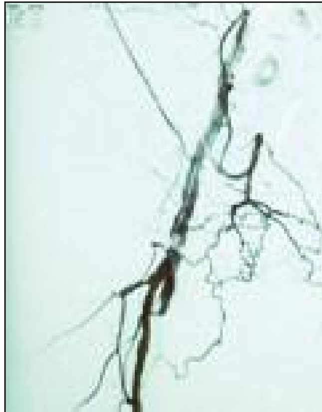

Figure 2a. Right femoral artery angiogram.

Figure 2b. Right femoral artery angiogram showing right superficial artery occlusion.

Figure 2c. Right posterior tibial artery in continuity.

Answer: C

What is PAD or PVD?

PAD, also known as peripheral vascular disease (PVD), is a very common condition affecting 12% to 20% of Americans ≥ 65-years-of-age. The primary factor for PVD is atherosclerosis. PAD is a condition similar to coronary artery disease and carotid artery disease. In PAD, fatty deposits build up in the inner linings of the artery walls. These blockages restrict blood circulation, mainly in arteries leading to the:

- kidneys,
- stomach,
- arms,
- legs and
- feet.

Presentation

In the early stages of PAD, a common symptom is cramping or fatigue in the legs and buttocks during activity. Such cramping subsides when the person stands still. This is called "intermittent claudication." People with PAD often have fatty build up in the arteries of the heart and brain. Because of this association, most people with PAD have a higher risk of death from heart attack and stroke. Other symptoms of PAD include:

- numbness and tingling in the lower legs and feet,
- coldness in the lower legs and feet and
- non-healing ulcers or sores on the legs or feet.

Risk factors

Risk factors of PAD include:

- Smoking
- High BP (hypertension)

- High cholesterol
- Diabetes
- A family history of heart or vascular disease
- Being overweight
- Lack of exercise or physical activity
- Age > 50 years

Smoking cigarettes/pipe

Cigarette smoking has a more profound effect on the peripheral vascular bed than on the coronary or cerebral vessels. In most series of patients with atherosclerotic PAD, > 90% of them are cigarette smokers. The cessation of cigarette smoking is a critical therapeutic intervention in these patients. There is a higher incidence of amputation and surgical therapy is less successful in those who fail to quit.

Cigarette smokers are 10 times more likely to develop lung cancer than nonsmokers. This risk is proportional to the number of cigarettes smoked per day.

A study of 15,000 male pipe smokers conducted by the American Cancer Society found that pipe smoking carried a similar risk of cancer and other disease as does cigar smoking. Compared to non-tobacco users, pipe smokers had:

- five times the risk of lung cancer,
- nearly four times the risk of throat cancer and
- more than double the risk of esophageal cancer.

The risk of cancer of the larynx is increased by 13%.[1]

Asbestos exposure and uranium mining interact synergistically with cigarette smoking to dramatically increase the risk of lung cancer.

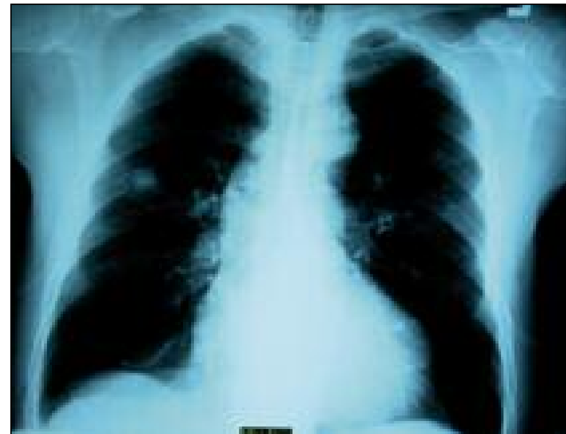

Figure 3. Chest x-ray.

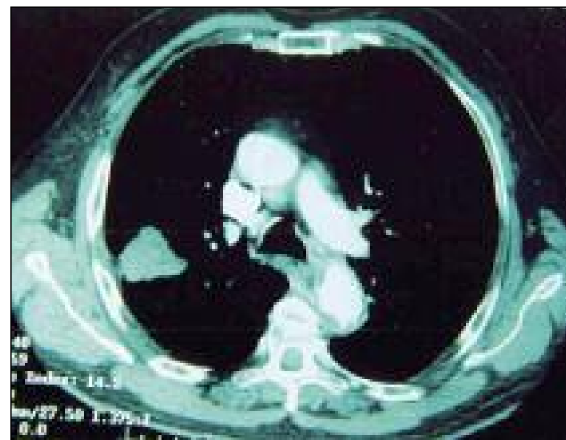

Figure 3a. CT scan of chest.

PAD or PVD, is a very common condition affecting 12% to 20% of Americans ≥ 65-years-of-age.

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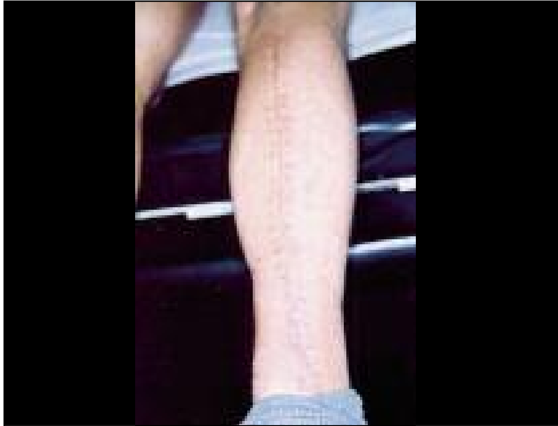

Figure 4. Evidence of a right femoral popliteal bypass.

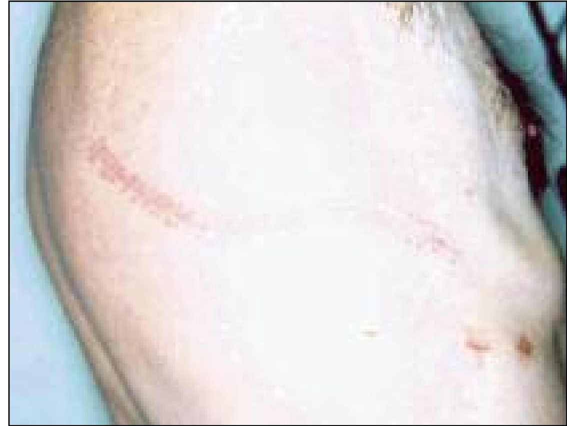

Figure 5. Evidence of a right upper lobectomy.

More on Edward

Edward finally stopped smoking his pipe as he understood the danger to his health.

Edward's right femoral angiogram showed the superficial femoral artery occlusion. The popliteal artery fills by collaterals. The peroneal artery and posterior tibial artery are in continuity. The plantar artery is patent in the foot.

He underwent right femoral popliteal bypass with a composite vein from the lesser and greater saphenous systems of the ipsilateral lower limb (Figure 4).

In most series of patients with atherosclerotic PAD, > 90% of them are cigarette smokers.

His chest x-ray showed a 3.5 cm mass in the right upper lobe. There was no hillar or mediastinal lymphoadenopathy.

A CT scan of Edward's chest showed a 4.8 cm mass within the right upper lobe with extension peripherally. No significantly enlarged hilar or mediastinal nodes were seen. There was no pleural fluid.

He underwent right upper lobectomy (Figure 5). Pathology showed Stage 2 non-small cell lung carcinoma with clear margins of resection. Dx

Reference

1. Factsheet no: 13: Pipe and Cigar Smoking. Action on Smoking and Health. July 2004. http://www.ash.org.uk/html/factsheets/html/fact13.html#_edn6