

## SELF ASSESSMENT ANSWERS

### Left pleural effusion in a female with coronary artery by-pass grafting

#### Q1: Describe the chest radiograph and thoracic computed tomography findings

On chest radiography and thoracic computed tomography left pleural effusion was detected. The left hemidiaphragm was raised because of phrenic nerve injury owing to the surgical intervention.

#### Q2: What is the most likely diagnosis?

The macroscopic appearance and the biochemical findings (triglycerides >1.2 mmol/l) of the pleural effusion were compatible with chylothorax.

#### Q3: What is the most likely mechanism of the disorder?

Chylothorax as a complication of CABG is probably a result of injury to the left internal mammary lymphatic during dissection of the vessel or from injury to the parasternal nodes.

#### Q4: What do you recommend for the treatment?

Conservative therapy is recommended. Oral nutrition by means of a low fat and high protein diet with medium chain triglycerides should be instituted. Total parenteral nutrition can also be tried in case the diet fails to reduce the chylous pleural effusion. The chyle may be drained through an intercostal chest tube and bleomycin pleurodesis may also be carried out.

#### Discussion

CABG surgery is known to cause pleural effusion due to various aetiologies (see box 1).

Chylothorax is the accumulation of chylous fluid containing high amounts of protein and fat within the pleural cavity due to damage to the thoracic duct. It may be traumatic, non-traumatic, or idiopathic. The traumas may be iatrogenic or non-iatrogenic. Iatrogenic chylothorax is a well recognised complication after thoracic surgery with an incidence of 0.5%.<sup>1</sup> Although unavoidable,<sup>2</sup> rare cases have been reported as a complication of CABG.<sup>3–11</sup> It usually results from injury to the left internal mammary lymphatic during dissection of the vessel or from injury to the parasternal nodes.<sup>3</sup> This could be the most probable mechanism of chylothorax in the present case, as one of the grafts was the left internal mammary artery. Congenital malformations, reoperations, and the use of electrocautery instead of ligation are other

mentioned risk factors for the occurrence of this complication.<sup>4–5</sup>

The leakage of chyle with a high protein, fat and lymphocyte content, leads to malnutrition and lymphopenia.<sup>1</sup> The woman described here had hypoalbuminaemia and lymphopenia compatible with a substantial amount of chyle leakage.

The management protocol is controversial. Approximately half of the patients with traumatic chylothorax are successfully treated with conservative therapy.<sup>2</sup> Unless the patient is severely ill and debilitated, medical treatment is recommended before an operation for duct ligation.<sup>12</sup>

A low fat diet with medium chain triglycerides, mostly absorbed directly into the blood, would cause the chyle to decrease in amount. The next step can be total parenteral nutrition. In cases not responding to conservative therapy, chylous effusion can be tapped by repeated aspirations or via intercostal tube drainage. Pleurodesis may be carried out by classical chemicals to stop the leakage. In case the leakage is not relieved by conservative therapy in two or three weeks, thoracic duct ligation through thoracoscopy should be considered.

In the present case, oral nutrition by means of a low fat and high protein diet with medium chain triglycerides was started and a week later replaced by total parenteral nutrition. A control chest radiograph after three weeks revealed resolution of the pleural effusion and the patient was discharged after bleomycin pleurodesis. At follow up, she has been well for four years, without recurrence of the pleural effusion.

In conclusion, chylothorax, a rare complication of CABG, should be kept in mind in patients with pleural effusion. Conservative therapy should be considered and surgery reserved as a last option.

#### Final diagnosis

Chylothorax.

#### References

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### A peculiar rash and red eye

#### Q1: What is the most likely diagnosis?

Behçet's disease. Behçet's disease is a vasculitic disorder characterised by recurrent aphthous mouth ulcers, genital ulceration, ocular lesions, and skin lesions.

#### Q2: What is the rash around the intravenous cannula site and what is the pathophysiology for this phenomenon?

This peculiar rash is called pathergy. This phenomenon of pathergy is a hallmark of this disorder. A positive pathergy is said to be present if the patient develops 2–4 mm of erythema 24–48 hours after #25 gauge needle prick to a depth of 5 mm.

The possible explanation for this phenomenon is increased superoxide production by neutrophils, increased chemotaxis, and excessive production of lysosomal enzymes.

#### Discussion

Behçet's disease was first described by a Turkish dermatologist, Hulusi Behçet (1889–1948), in 1937. The disorder is characterised by a triad of aphthous stomatitis, genital ulcers, and uveitis. The disease characteristically takes a chronic course of remissions and relapses with a male preponderance. Behçet's disease is associated with HLA-B51 and is mainly observed in countries around the Mediterranean and in the Far East.

Two sets of criteria are used for the diagnosis of Behçet's disease: international criteria, derived in 1990, and the O'Duffy criteria.

The international criteria include recurrent oral ulceration, plus two of the following:

- Recurrent genital ulcerations.
- Eye lesions (anterior uveitis or posterior uveitis).
- Cells in the vitreous.
- Retinal vasculitis.
- Skin lesions (erythema nodosum, pseudo-folliculitis, papulopustular lesions, acneiform nodules in a post-adolescent patient not taking corticosteroids).
- Positive pathergy test.

The O'Duffy criteria require that, in addition to recurrent aphthous ulceration, any two of the following must be present:

- Genital ulcers.
- Uveitis.
- Cutaneous pustular vasculitis.
- Synovitis.
- Meningoencephalitis.
- Exclusion of inflammatory bowel disease, systemic lupus erythematosus, Reiter's syndrome, and herpetic infections.

#### Box 1: Differential diagnosis of pleural fluid in subjects with CABG

- Dressler's syndrome.
- Congestive heart failure.
- Pulmonary embolism.
- Para pneumonic effusion.
- Chylothorax.

**Table 1** Clinical manifestations

Mucocutaneous ulceration (80%–100%) Cutaneous (35%–65%)	Oral aphthous ulcers, <sup>1</sup> genital ulcers Pathergy, <sup>2</sup> erythema nodosum, thrombophlebitis, acneiform skin eruption, palpable purpura
Ocular (50%–79%)	Anterior uveitis, posterior uveitis, corneal ulceration, conjunctivitis, papillitis, retinal vasculitis
Musculoskeletal (30–50%)	Non-erosive asymmetric oligoarthritis, pseudopodagra, sacroiliitis
Neurological (10%–30%)	Aseptic meningitis, encephalitis, peripheral Neuropathy, cranial nerve palsies, seizures, cerebellar ataxia, pseudobulbar palsy, extra pyramidal signs
Renal	Focal proliferative glomerulonephritis, diffuse proliferative glomerulonephritis, membranous glomerulonephritis
Cardiovascular	Pericarditis, myocarditis, coronary arteritis, conduction defects, endocarditis, endomyocardial fibrosis, intracranial aneurysms <sup>3</sup>

**Box 1: Differential diagnosis of oral aphthous ulcers**

- Idiopathic.
- B12/folate/iron deficiency.
- Gluten sensitive enteropathy.
- Inflammatory bowel disease.
- Behçet's disease.
- Stevens-Johnson syndrome.
- Menstrually related.

**Treatment**

Studies for the treatment of Behçet's disease are small and only a few randomised controlled trials have been performed. Assessment of the efficacy of the treatment is limited by the natural waxing and waning of the disease, the need to tailor therapy to the clinical manifestations that are present, and variable response rates to the treatment used.

Non-steroidal anti-inflammatory drugs are most commonly given for the treatment of arthritis but are not always useful. Steroids, sulphasalazine, methotrexate, cyclosporin, and other immunosuppressive agents may be used for more severe arthritis, although there are no large trials available with these agents.

Mild oral and genital ulcers can be treated with local corticosteroids. Thalidomide has also been used successfully in treating mucocutaneous lesions. Colchicine, which has been traditionally used for every aspect of Behçet's syndrome, seems to be effective mainly for the treatment of the mucocutaneous lesions in female patients.

Significant ocular, neurological, gastrointestinal, vascular, or other serious end organ manifestations require treatment with steroids and other immunosuppressive agents.

Interferon-alfa has been beneficial in ocular, neurological, mucocutaneous, and articular manifestations in a number of case reports and case series.<sup>4</sup> Anecdotal evidence of the beneficial effects of antitumour necrosis factor therapy has been reported.<sup>5</sup>

**Final diagnosis**

Behçet's disease.

**Box 2: Conditions to be considered with acute iritis**

- Sarcoidosis.
- Ankylosing spondylitis.
- Juvenile rheumatoid arthritis.
- Inflammatory bowel disease.
- Psoriasis.
- Reiter's syndrome
- Behçet's disease.
- Herpes infections.
- Lyme disease.
- Tuberculosis, leprosy, onchocerciasis.

**References**

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**A painful swollen hand****Q1: What are the features seen on the radiograph?**

The radiograph shows soft tissue swelling around the third and fourth metacarpal and a possible fracture of the third metacarpal shaft.

**Q2: What other investigation is required?**

A further radiograph (fig 1, above) of the hand in oblique view, which shows the fracture clearly.

**Figure 1** Radiograph of hand (oblique view).**Q3: What is the likely diagnosis?**

Long spiral fracture of the shaft of the third metacarpal bone.

**Q4: What is the line of management?**

Splinting of the hand using a volar back slab for four weeks and early physiotherapy is recommended.

**Fractures of the shaft of the metacarpals**

Fractures of the hand, especially the dominant hand, are an important group of injuries. They need proper assessment and management. Neglected injuries and improperly treated injuries can result in devastating complications and early arthritic changes can lead to loss of functional life years. Hundreds of hand injuries are seen daily in accident and emergency departments across the country. This case highlights the importance of proper assessment and need for the gold standard two views in radiographs for any hand injuries, so that the fracture can be identified in one or the other plane and appropriate treatment can be instituted without any delay.

Fractures of the metacarpal can involve the head, neck, the shaft or the base. Intra-articular fractures need anatomical reduction and proper fixation to prevent early onset osteoarthritis.<sup>1</sup> Fractures of the shaft can be treated conservatively by splinting appropriately and early mobilisation. Displaced fractures and unstable fracture configurations can be dealt with by early internal screw fixation. Involvement of a specialist hand physiotherapist is extremely important.

**Final diagnosis**

Long spiral fracture of the shaft of the third metacarpal bone.

**References**

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