14. **Howel D**, Arblaster L, Swinburne L, *et al*. Routes of asbestos exposure and the development of mesothelioma in an English region. *Occup Environ Med* 1997;**54**:403–9.
15. **Howel D**, Gibbs A, Arblaster L, *et al*. Mineral fibre analysis and routes of exposure to asbestos in the development of mesothelioma in an English region. *Occup Environ Med* 1999;**56**:51–8.
16. **Curran D**, Sahnoud T, Therasse P, *et al*. Prognostic factors in patients with pleural mesothelioma: the European Organisation for Research and Treatment of Cancer Experience. *J Clin Oncol* 1998;**16**:145–52.
17. **Hernden JE**, Green MR, Chahinian AP, *et al*. Factors predictive of survival among 337 patients with mesothelioma treated between 1984 and 1994 by the Cancer and Leukaemia Group B. *Chest* 1998;**113**:723–31.
18. **Peto J**, Decarli A, Vecchia C, La Levi F, Negri E. The European mesothelioma epidemic. *Br J Cancer* 1999;**79**:666–72.
19. **Scott B**, Mukherjee S, Lake R, *et al*. Malignant mesothelioma. In: Hanson, ed. *Textbook of lung cancer*. London: Martin Dunitz, 2000:273–93.
20. **Elmes PC**, Simpson MJC. The clinical aspects of mesothelioma. *Q J Med* 1976;**179**:427–49.
21. **Van Ooijen B**, Eggermont AMM, Wiggers T. Subcutaneous tumour growth complicating the positioning of the Denver shunt and intrapleural port-a-cath in mesothelioma patients. *Eur J Surg Oncol* 1992;**18**:638–40.
22. **Lee G**, Baumann MH, Maskell NA, *et al*. Pleurodesis practice for malignant pleural effusions in five English-speaking countries: survey of pulmonologists. *Chest* 2003;**124**:2229–38.
23. **Dresler C**, Olak J, Herndon J, *et al*. Phase III intergroup study of talc poudrage vs talc slurry sclerosis for malignant pleural effusion. *Chest* 2005;**127**:909–15.
24. **Boutin C**, Rey F, Viallat JR. Prevention of malignant seeding after invasive diagnostic procedures in patients with pleural mesothelioma. A randomized trial of local radiotherapy. *Chest* 1995;**108**:754–8.
25. **O'Rourke N**, Curto GJ, Paul J, *et al*. A randomised controlled trial of intervention site radiotherapy in malignant pleural mesothelioma. *J Eur Soc Ther Radiol Oncol* 2007;**84**:18–22.
26. **De Lajarte AY**, Tayot J, De Larjarte, *et al*. Aspects évolutifs des mesothéliomes pleuraux diffus. *Re Fr Mal Resp* 1979;**7**:277–90.
27. **Adams VI**, Unni KK. Diffuse malignant mesothelioma of the pleura: diagnostic criteria based on an autopsy study. *Am J Clin Pathol* 1984;**82**:15–23.
28. **Ratzer ER**, Pool JL, Melamed MR. Pleural mesotheliomas: clinical experience with 37 patients. *AJR Am J Roentgenol* 1967;**99**:863–80.
29. **Whitwell F**, Rawcliffe RM. Diffuse malignant pleural mesothelioma and asbestos exposure. *Thorax* 1971;**26**:6–22.
30. **Brenner J**, Sordillo PP, Magill GB, *et al*. Malignant mesothelioma of the pleura: review of 123 patients. *Cancer* 1982;**49**:2431–5.
31. **Law MR**, Hodson ME, Turner-Warwick M. Malignant mesothelioma of the pleura: clinical aspects and symptomatic treatment. *Eur J Respir Dis* 1984;**65**:162–8.
32. **Ruffie P**, Feld R, Minkin S, *et al*. Diffuse malignant mesothelioma of the pleura in Ontario and Quebec: a retrospective study of 332 patients. *J Clin Oncol* 1989;**7**:1157–68.

Pulmonary puzzle

ANSWER

From the question on page 401.

The incident occurred 4 days after accidental aspiration of isoparaffin which is used in fire eating. The normal procedure is to blow out the isoparaffin against a burning stick; however, in this case the patient inspired and aspirated the isoparaffin. This case describes an acute form of lipid pneumonia or fire eater's lung. There have been reports of chronic aspiration of liquid paraffin where it has been used to treat constipation, particularly in children.¹ Since liquid paraffin has a high viscosity, it depresses the cough reflex, facilitating aspiration.

The clinical presentation may vary from an incidental detection on the chest radiograph to acute pneumonia as in this case or chronic fibrosis. Inflammatory markers and white cell count are raised in the cases described. The chest radiograph typically shows alveolar consolidation and ground-glass opacities.² A CT scan of the thorax may demonstrate areas of alveolitis, consolidation and pneumatoceles.³ Bronchoscopy and bronchoalveolar lavage may be useful where the diagnosis is in doubt. Fat globules are found in the bronchoalveolar fluid and lipid-laden macrophages are noted on cytological examination. Pulmonary function testing may demonstrate bronchial hyperresponsiveness and a restrictive ventilatory defect.⁴

Case reports have described treatment with corticosteroids, although there are no experimental data supporting their role.⁵ Prophylactic antibiotics are also reported to be used in the treatment and may treat any co-existing bacterial infection. The prognosis is generally good, but one study found that 21% of patients developed complications which included fibrosis, abscesses, effusions, bronchopulmonary fistula and bacterial superinfection.³

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REFERENCES

1. **Kameswaran M**, Annobil SH, Benjamin B, *et al*. Bronchoscopy in lipid pneumonia. *Arch Dis Child* 1992;**67**:1376–7.
2. **Gondouin A**, Manzoni PH, Ranfaing E, *et al*. Exogenous lipid pneumonia: a retrospective multicentre study of 44 cases in France. *Eur Respir J* 1996;**9**:1463–9.
3. **Franquet T**, Gómez-Santos D, Giménez A, *et al*. Fire eater's pneumonia: radiographic and CT findings. *Comput Assist Tomogr* 2000;**24**:448–50.
4. **Brander PE**, Taskinen E, Stenius-Aarniala B. Fire-eater's lung. *Eur Respir J* 1992;**5**:112–4.
5. **Mullin LS**, Ader AW, Daughtrey WC, *et al*. Toxicology update isoparaffinic hydrocarbons: a summary of physical properties, toxicity studies and human exposure data. *J Appl Toxicol* 1990;**10**:135–42.