Respiratory Disorders During Perimenstrual Period

RS Bhatia*, BL Bhardwaj**

***Senior Consultant Chest Physician, Hon. Advisor, Apollo Clinic, Ludhiana,**
****Associate Professor Medicine, Govt. Medical College Patiala, Punjab.**

115

RESPIRATORY DISORDERS DURING PERIMENSTRUAL PERIOD

Menstruation is a periodic endocrinological phenomenon in females where hormonal release primarily affects the flow of blood through the genito-urinary system. Perimenstrual period may influence respiratory system, having pulmonary manifestations such as haemoptysis, pneumothorax and exacerbations of bronchial asthma in some female patients.[1] Ectopic endometriosis or alteration in hormonal levels with varied emotional stress have been implicated.[2]

HAEMOPTYSIS DURING MENSTRUATION

Haemoptysis may occur during menstruation due to intrathoracic endometriosis. Bleeding can be mild or massive and phenomenon is recurrent. Computerized tomography and magnetic resonance imaging help in pin-pointing the diagnosis.[3] Bleeding site can be visualized during menstruation by flexible fiberoptic bronchoscopy. Hormonal treatment may be required on long term basis to check the bleeding. Endometrial tissue can be resected in case the bleeding is recurrent and massive. With the help of video-assisted thoracoscopic surgery (VATS),[4] wedge resection of localized peripheral pulmonary parenchymal endometrial tissue can be undertaken.

CATAMENIAL PNEUMOTHORAX

Pneumothorax developing in conjunction with periodic menstrual bleeding is called catamenial pneumothorax. Described first by Maurer et al in 1958, it is a rare cause of secondary pneumothorax.[5] The condition is recurrent,[6] and mostly seen in multiparous women.[7] Almost 1/3rd of cases have associated pelvic endometriosis. Generally the pneumothorax is small and occurs mostly on the right side. Implants of endometrial tissue may be found in the diaphragm or pleura. Air possibly passes from the peritoneal cavity into the pleural cavity through diaphragmatic fenestrations.[5] Treatment includes suppression of ovulation. Drugs employed include Gn-RH analogues, danazol, contraceptive hormones and progestogens. Pleurodesis by thoracoscopic talc powder during menstruation is useful. To prevent recurrence, surgical resection of endometrial tissues on diaphragm and parietal pleura and diaphragmatic repair has been advocated.[7]

MENSTRUATION-LINKED ASTHMA (MLA)

Severe asthmatic patients may get exacerbation of asthma attack during premenstrual period. Worsening of condition in 23% of female asthmatic patients during menstrual period has been documented.[8] Pathogenesis of MLA remains undetermined. Possible fall in progesterone level or increased level or increased levels of bronchoconstriction such as prostaglandin PGF2a may be responsible for such an exacerbation in symptoms. Increased emotional stress during menstrual cycle, enhanced autonomic lability and escalated bronchial wall hydration possibly aggravate the symptoms of asthma.[9] Treatment is similar to that of other asthma. However, progesterone, diuretics and anti-inflammatory drugs have also been tried with varying results.

HAEMOTHORAX

Haemothorax is one of the 2nd important respiratory disorders related to menstruation. The diagnosis needs to be kept in mind while managing haemothorax in young adult females.[10]

Normally blood cells and shed endometrial tissue enter the pleural space through diaphragmatic stomata and are finally cleared by lymphatics. This endometrial tissue during menstruation may proliferate later, causing blockage of these stomata. Failure to drain the shed blood may then result in haemothorax.[11] History of catamenial pulmonary symptoms, often gives the diagnostic clue.[12] Estimation of endometrial antibody in serum may support the diagnosis.[13] Chemical pleurodesis remains the effective mode of treatment.[14] Implants of endometrial tissue on the pleura can produce chest pain during menstruation. Pain has been found persisting in patients after various treatment procedures possibly because of residual implants of endometrial tissue in the pleural cavity and thus gives rise to chest pain during menstruation.[11]

CONCLUSION

Catamenial pneumothorax, haemothorax, haemoptysis, bronchial asthma, lung nodule, isolated chest pain and pneumomediastinum are the manifestations of chest, commonly seen during menstruation and have been described collectively as thoracic endometriosis syndrome by Joseph et al in 1996.[11] The pulmonary access of endometrial tissue is possible through congenital diaphragmatic defects[15] or it's microembolisation through pelvic veins during trauma, pelvic surgery or uterine tissue manipulation.[16] Catamenial pulmonary symptoms often offer

diagnostic clue. However, biopsy remains the ultimate diagnostic measure. Cytology of bronchoscopic aspirated material,[10] CT scan in peri-menstrual period,[17] and estimation of antibody in serum also support the diagnosis. Chemical pleurodesis offers an effective measure to treat catamenial pneumo and haemothorax.[14] Wedge resection can clear the bleeding.[4] Pleural abrasion and pleurectomy prevents the recurrence of symptoms in pneumothorax.[2] Treatment of asthma in menstruation remains essentially the same[1] as treating a case of bronchial asthma. The advancement in technology and education to the patients to utilize the benefit of continuously changing technology should be stressed and passed on to the patients.

REFERENCES

1. Shankar PS. Menstruation related respiratory disorders. *Med Update* 2000;7:1495-96.
2. Bhatia RS. Catamenial pneumothorax; In; Common Chest Diseases; (In Press).
3. Cassina PC, Hauser M. Karl G, et al. Catamenial haemoptysis; Diagnosis with MRI. *Chest* 1998;111:1447-50.
4. Ander A, Aoe M, Date H, et al. A case of catamenial haemoptysis (Pulmonary endometriosis caused by VATS lobectomy). *Kyobu Greka* 1996;49:827-31.
5. Behera DL. Text book of Pulmonary Medicine; JP Brother Medical Publishers (P) Ltd; Delhi; 1995:537-48.
6. Lillington GA, Mitchell SP, Wood GA. Catamenial pneumothorax. *JAMA* 1972;219:1328.
7. Hamacher J, Bruggiser D, Mordesini C. Menstruation associated pneumothorax and catamenial haemoptysis *Schweiz Med Wochenchr* 1996;126:926-32.
8. Agarwal AK, Shah A. Menstrual linked asthma. *J Asthma* 1997;34: 539-45.
9. Chein JS, Mintz S. Pregnancy and menses in bronchial asthma; Mechanism and therapeutics; ED; Weiss EB; Stein M; 3rd ed; Boston; *Little Brown* 1993;1085-88.
10. Gupta N. Gupta RC. Thoracic endometriosis syndrome. *Lung India* 2000: XVIII:32.
11. Joseph J, Sahn SA. Thoracic endometriosis syndrome; New observations from an analysis of 110 cases. *Am J Med* 1996;100:164-70.
12. Juganyik KJ. Conaiate F. Extra pelvic-endometriosis. *Obst Gynae Clin* 1997;24:411-40.
13. Mathur S, Garza DE. Smith LF. Endometrial autoantigens eliciting immunoglobulin IgG, IgA and IgM responses in endometriosis. *Fertil Steril* 1990;54:56-63.
14. Joseph J. Reed CI Sahn SA. Thoracic endometriosis; recurrence following hysterectomy with bilateral salpingo-oophorectomy and successful treatment with talc pleurodesis. *Chest* 1994;104:100-103.
15. Downey DB, Towers MJ. Poon PY, et al. Pneumoperitoneum with catamenial pneumothorax. *Amer J Roentgenol* 1990;155:29-30.
16. Berquist A. Extra-genital endometriosis; A review. *Eur J Surg* 1992;188: 7-10.
17. Elliot DL, Barker AI, Dixon LM. Catamenial haemoptysis; new methods of diagnosis and therapy. *Chest* 1985;87:687-88.