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ANSWER: SPONTANEOUS PNEUMOMEDIASTINUM ASSOCIATED WITH PNEUMORRHACHIS

Chest radiograph (Figure 1a) shows extension of air pockets in the superior mediastinum, lining both the paraspinal (green arrow), paratracheal (yellow arrow), aortic pulmonary stripe and retroaortic regions (orange arrow) suggestive of pneumomediastinum. There is extension of air lining both left and right heart border within the pericardium as well causing pneumopericardium. (black arrowhead) Subcutaneous emphysema in the left axillary fossa and supraclavicular region. (blue arrowhead). Coronal CT cervicothoracic spine in lung setting (Figure 1b) showing air tracking along the spinal cord and exiting nerve roots suggestive of pneumorrhachis. (black arrowhead) Associated with subcutaneous emphysema as well (blue arrowhead). Axial CT thorax in lung setting (Figure 1c) showing pneumomediastinum surrounding the descending thoracic aorta and esophagus. (blue arrowhead) There is associated pneumopericardium as well. (black arrowhead)

Spontaneous pneumomediastinum complicated with pneumorrhachis is a rare radiographic occurrence in childhood.¹ Pneumomediastinum is defined as presence of air within the mediastinum¹ and pneumorrhachis refers to as presence of free air within epidural space encircling the spinal cord.² There are

numerous synonyms namely intraspinal air, intraspinal pneumocoele, spinal epidural and subarachnoid pneumatosis, spinal and epidural emphysema, aerorachia, pneumosaccus, air myelogram, pneumomyelogram or pneumomyelography.²

Lucent streak of air lining the mediastinum confirms the diagnosis of pneumomediastinum on chest radiograph with typical presentation of chest pain along with Hamman's sign on heart auscultation.³

Diagnosis of pneumorrhachis is based on radiograph and computed tomography. Radiographs are helpful for initial detection.⁴ Computed tomography is the gold standard of detection and to further evaluate the extent of the air within the spinal canal.⁴

Both pneumorrhachis and pneumomediastinum required short period of close observation, preferably in intensive care unit with eventual discharge with home rest with avoidance of Valsalva.⁵ Further investigation and management of the primary medical condition (if any) should be concurrently carried out. The possibility of rapid and irreversible neurologic deterioration remains if underlying cause is not fully treated. Thus, pneumomediastinum complicated with pneumorrhachis mandates a higher level of care and heightened suspicion of subtle neurologic symptomatology.

REFERENCES

- 1: Gasser CRB, Pellaton R, Rochat CP. Pediatric Spontaneous Pneumomediastinum. *Pediatric Emergency Care.* 2017;33(53):70-374.
- 2: Oertel MF, Korinth MC, Reinges MHT, Krings T, Terbeck S, Gilsbach JM. [Pathogenesis, diagnosis and management of pneumorrhachis.](#) *European Spine Journal.* 2006;15(Suppl 5):636-643. [Accessed on 20 June 2020].
- 3: Chalumeau M, Le Clainche L, Sayeg N, Sannier N, Michel JL, Marianowski R, Jouvet P, Scheinmann P, de Blic J. Spontaneous pneumomediastinum in children. *Pediatr Pulmonol.* 2001;31:67-75.
- 4: Chiba, Y. & Kakuta, H. Massive subcutaneous emphysema, pneumomediastinum, and spinal epidural emphysema as complications of violent coughing: a case report. *Auris Nasus Larynx.* 1995;22(3):205-208.
- 5: Fitzwater JW, Silva NN, Knight CG, Malvezzi L, Ramos-Irizarry C, Cathy A. Burnweit, Management of spontaneous pneumomediastinum in children. *Journal of Pediatric Surgery.* 2015;50(6) 2015;983-986.