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Search Strategies: Vegetable Foreign Body Mimicking as a Suspicious Pulmonary Nodule in an Adult Patient with a History of Lung Cancer; Microscopic Diagnosis of Vegetable Aspiration

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Purpose:

To search in the PubMed and Web of Science databases to identify similar reports and submit this interesting case report in the “postgraduate educational corner” of the CHEST journal.

PubMed:

MeSH term: To initiate the searches in PubMed, MeSH terms were selected by reviewing different articles. On October 3, 2013 following MeSH term searches were performed to identify articles of interest.

Table 1:

Searches	MeSH	References
1	Respiratory Aspiration OR Foreign Bodies OR Bronchoscopy	59716
2	Foreign Bodies AND Respiratory Aspiration	135
3	Foreign Bodies AND Respiratory Aspiration AND Bronchoscopy	77
4	Bronchoscopy AND Vegetables	39
5	Foreign Bodies AND Respiratory Aspiration AND Bronchoscopy AND Vegetables	2
6	Foreign Bodies AND Respiratory Aspiration AND Bronchoscopy AND Vegetables AND Nuts	1

The reference articles identified by the second search strategy were reviewed in detail. These articles focus on foreign body aspiration in children and adults, aspiration of tooth - dentures and review articles describing institutional experience of foreign body removal using rigid or flexible bronchoscope. No reference to an article directly addressing vegetable aspiration identified. Interestingly the MeSH term “Respiratory Aspiration” was introduced in 2007 and all the search strategies referenced articles after 2008. The subsequent search strategies did not reveal any additional article pertinent to the report.

On October 18, 2013 following MeSH term searches were performed to identify articles of interest in Pub Med.

Table 2:

Searches	MeSH	References
1	Pneumonia, Aspiration OR Foreign Bodies OR Bronchoscopy	63960
2	Pneumonia, Aspiration AND Foreign Bodies	181
3	Pneumonia, Aspiration AND Foreign Bodies AND Bronchoscopy	46
4	Pneumonia, Aspiration AND Foreign Bodies AND Bronchoscopy AND Vegetables	5

References identified in the second search strategy were reviewed and then ten pertinent articles selected. Vegetable aspiration in adults is usually associated with an underlying predisposing condition or risk factor i.e. mental retardation, neuromuscular diseases etc.¹⁻⁴ Similarly in children; in addition to the predisposing condition the shape and texture of the vegetable increases the risk⁵⁻⁸.

Heigener D, et al. (article in German) describes foreign body aspiration mimicking lung cancer⁹ similar to the clinical and radiographic presentation of our patient with two cm pulmonary nodule in the left lower lobe. He was followed for two years with serial computed tomographic scan of chest. This article was excluded since it was published in a non-English language. Other articles were excluded if they were more than 30 years old.

Kuschner WG et al. describe diagnosis of vegetable aspiration by microscopy¹⁰. This article is most pertinent to our search and narrates a similar diagnostic approach.

Web of Knowledge:

Web of Knowledge with the “All Databases” search option was used to identify additional pertinent references. This search strategy revealed eight references, but no additional reference pertinent to the current search. The search strategy consisted of the following:

Topic=(aspiration pneumonia) AND Topic=(bronchoscopy) AND Topic=(vegetable)
Timespan=All years
Search language=English

References:

- 1: Martínez-Girón R, Ribas-Barceló A, Astudillo-González A, Calvo-Temprano D. Histologic findings and comparison with sputum smears in pulmonary aspiration of vegetable particles in syringomyelia: a case report. *Acta Cytol.* 2007 Nov-Dec;51(6):921-4. PubMed PMID: 18077987.
- 2: Mukhopadhyay S, Katzenstein AL. Pulmonary disease due to aspiration of food and other particulate matter: a clinicopathologic study of 59 cases diagnosed on biopsy or resection specimens. *Am J Surg Pathol.* 2007 May;31(5):752-9. PubMed PMID: 17460460.
- 3: Barrio Gómez de Agüero MI, Martínez Carrasco MC, Olivares P, Gamallo C, Sánchez MC, Antelo Landeira MC. [Pulmonary granulomatosis caused by lentil aspiration]. *Arch Bronconeumol.* 1995 Nov;31(9):485-7. Spanish. PubMed PMID: 8520822.
- 4: Sakamoto O, Saita N, Yamasaki H, Tamanoi M, Ando M. Pulmonary granulomatosis caused by aspirated green tea. *Chest.* 1994 Jul;106(1):308-9. PubMed PMID: 8020300.

- 5: Qureshi S, Mink R. Aspiration of fruit gel snacks. *Pediatrics*. 2003 Mar;111(3):687-9. PubMed PMID: 12612261.
- 6: Gadol CL, Joshi VV, Lee EY. Bronchiolar obstruction associated with repeated aspiration of vegetable material in two children with cerebral palsy. *Pediatr Pulmonol*. 1987 Nov-Dec;3(6):437-9. PubMed PMID: 3320918.
- 7: Hayder R, Rieu D, Baldet P, Bonnet H, Jean R. [Pulmonary granulomatosis induced by carrot inhalation (Elonac soup) in a newborn]. *Arch Fr Pediatr*. 1974 Jan;31(1):89-100. French. PubMed PMID: 4842848.
- 8: Mitchinson MJ. The inhalation of leguminous particles. *J Pathol*. 1972 Jul;107(3):221-2. PubMed PMID: 5084935.
- 9: Heigener D, Lotz P, Akkan R, Fraedrich J, Welker L, Gatzemeier U. [Foreign body aspiration mimicking lung cancer]. *Med Klin (Munich)*. 2007 Oct 15;102(10):859-60. German. PubMed PMID: 17928971.
- 10: Kuschner WG, Sarinas PS, Chitkara R. Foreign body aspiration diagnosed by microscopy. *Am J Med Sci*. 2001 Jul;322(1):44-7. Review. PubMed PMID: 11465246.