



## Case report

## Multivitamin pill aspiration leading to hemorrhagic bronchial necrosis

Mario Tamburrini<sup>a</sup>, T.K. Jayalakshmi<sup>b,\*</sup>, Dipesh Maskey<sup>c</sup>, Nirupam Sharan<sup>d</sup>, Giuseppe Deda<sup>a</sup>, Umberto Zuccon<sup>a</sup>

<sup>a</sup> AAS5 Friuli occidentale, Pordenone, Italy

<sup>b</sup> Apollo Hospitals, Navi Mumbai, India

<sup>c</sup> NH Narayana Speciality Hospital, Raipur, India

<sup>d</sup> The Happy Lungs, Ranchi, Jharkhand, India



## A B S T R A C T

This article highlights the serious but reversible effects of multivitamin pill aspiration into the lungs. If diagnosed early and treated promptly the harmful effects of the pill constituents on the lungs and airways can be attenuated. An early bronchoscopy and a high index of suspicion is required in order not to miss these events. We have described a case of multivitamin pill aspiration in a young healthy male and the good response to early intervention.

## 1. Introduction

In literature there are many case reports of inhaled foreign bodies. Aspirated Pill is a rare type of foreign body and may present innocuously as breathlessness or asthma or dry cough and hence can be easily missed. Multivitamins and herbal supplements are common preparations, often used as nonprescription medications and can cause serious complications if they go down the bronchi.

## 2. Clinical case history

Our patient was a 31-year-old male who presented to the Emergency department complaining of breathlessness on exertion and dry cough. He had swallowed a multivitamin soft gel capsule in the morning around 8 a.m. and had severe cough and bronchospasm immediately thereafter. Subsequently the symptoms subsided partially and he presented to the emergency department of our hospital by 9 a.m. However, he had normal oxygen saturation and stable vitals when he had arrived in emergency. He had no other comorbidities and was not on any other regular medications. He was taking the herbal multivitamins as health supplement.

## 3. Investigations

Chest X ray was normal (Fig. 1). He was referred for ENT evaluation which showed normal vocal cords and pharynx and nasal passages. Baseline blood tests were normal. Patient underwent a bronchoscopy on

the same morning within 5 hours of the aspiration. Bronchoscopy revealed normal trachea and left bronchial tree. On the right side bronchus intermedius and middle and lower lobe bronchi were severely edematous and friable with areas of hemorrhage (Fig. 2). Bronchial washing with normal saline was done and bronchial aspirate collected. Biopsy was done from the mucosa which revealed non-specific inflammation and areas of necrosis with hemorrhages (Fig. 3). Bronchial aspirate culture revealed growth of staphylococcus sensitive to common antibiotics.

## 4. Treatment

Patient was treated with a course of steroids and Amoxy-clavulanic acid. His symptoms improved and he was subjected to second bronchoscopy 18 days later. This time there was significant clearing of the mucosal lesions in the right bronchial tree with almost normal looking mucosa (Fig. 4).

## 5. Discussion

Dr. Gustave Killian first reported removal of aspirated chicken bone from the bronchus in 1897 [1]. Since then many different types of foreign bodies have been removed from the airways. There have been various case reports describing effects of aspiration of different types of pill on the airways [2,3]. Many of the reports are of iron containing pills leading to severe fibrosis of the airway [3–6]. There are also reports of severe damage following pill aspiration leading to necessity for

\* Corresponding author.

E-mail addresses: [Mario.tamburrini@aa55.sanita.fvg.it](mailto:Mario.tamburrini@aa55.sanita.fvg.it) (M. Tamburrini), [jaiclinic@gmail.com](mailto:jaiclinic@gmail.com) (T.K. Jayalakshmi), [maskeyd@gmail.com](mailto:maskeyd@gmail.com) (D. Maskey), [nirupamsharan24@gmail.com](mailto:nirupamsharan24@gmail.com) (N. Sharan), [giuseppe.deda@aa55.sanita.fvg.it](mailto:giuseppe.deda@aa55.sanita.fvg.it) (G. Deda), [Umberto.zuccon@aa55.sanita.fvg.it](mailto:Umberto.zuccon@aa55.sanita.fvg.it) (U. Zuccon).

<https://doi.org/10.1016/j.rmcr.2019.100944>

Received 21 September 2019; Received in revised form 2 October 2019; Accepted 12 October 2019

Available online 14 October 2019

2213-0071/© 2019 The Authors.

Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

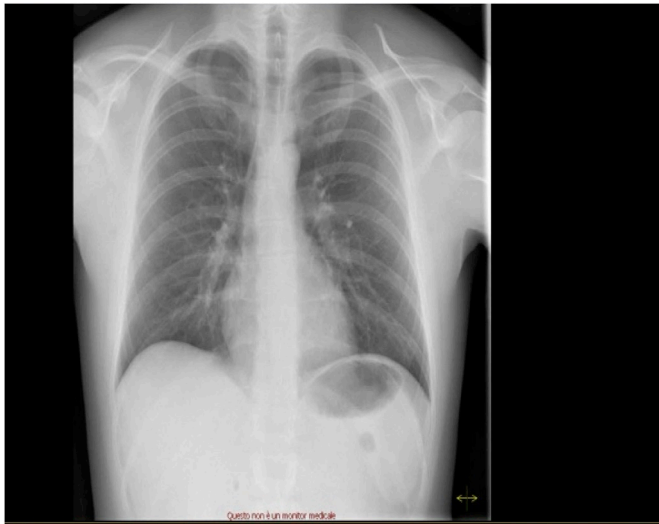


Fig. 1. Chest X ray on presentation.

lobectomy of the lung and even death [7].

The harmful effects of pill aspiration also depend on the type of pill ingested and its constituents [8]. Our patient had inhaled a soy based multivitamin soft gel capsule which had several minerals including magnesium, calcium, iodine, molybdenum, zinc, selenium, copper. Any of these minerals could have caused the mucosal damage seen in our patient. Our case report highlights the potential benefit of early bronchoscopy which can help wash out the pill remnants on the airways and prevent serious damage. Our patient had received short course of oral steroids for anti-inflammatory effects and also antibiotics to treat infection. Iron aspiration syndrome is a well-documented feature in literature with numerous case reports published. Mucosal discoloration, edema and subsequent bronchial stenosis have been described [3–8]. Magnesium, calcium and potassium and tetracycline are the other tablet aspirations described which have effects of mucosal edema and inflammation [9–12]. To our knowledge this is the first case of soy based soft gel multivitamin tablet aspiration described in the literature. Our patient had good healing of the mucosal lesions probably because of

early bronchoscopy and washings being done within 5 hours of the aspiration and early use of steroids and antibiotics.

Various case reports in literature show that patients present after several months and bronchoscopy gets delayed as the initial choking symptoms subside and later the cough and mild dyspnea that remains is misdiagnosed as airway disease due to bronchitis or asthma [13]. Hence the bronchoscopy gets delayed leading to irreversible bronchial stenosis. Frequently the constituents of the pill are not seen in the trachea as the pill disintegrates and gets partially absorbed hence there are no findings except for mucosal damage and discoloration. Hence a good clinical history is important for the diagnosis.

The syndrome is also more common in the elderly hence one should be cautious in prescribing excessive number of medications in this age group. A recent survey of adverse effects of drugs has shown that large sized pills are more likely to cause aspiration syndromes and more in the elderly age group [14]. Illnesses like stroke and parkinsonism can further increase the risk of aspiration in this population. Our case report highlights the risk of pill aspiration, albeit rare, in a normal healthy male with no previous risk factors.

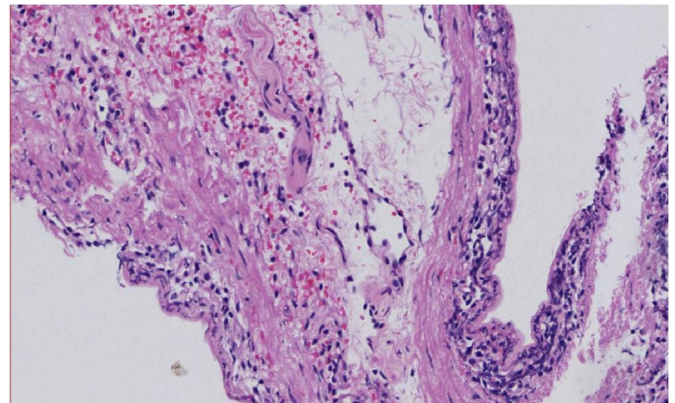


Fig. 3. Histopathology showing hemorrhagic necrosis and inflammatory cells.

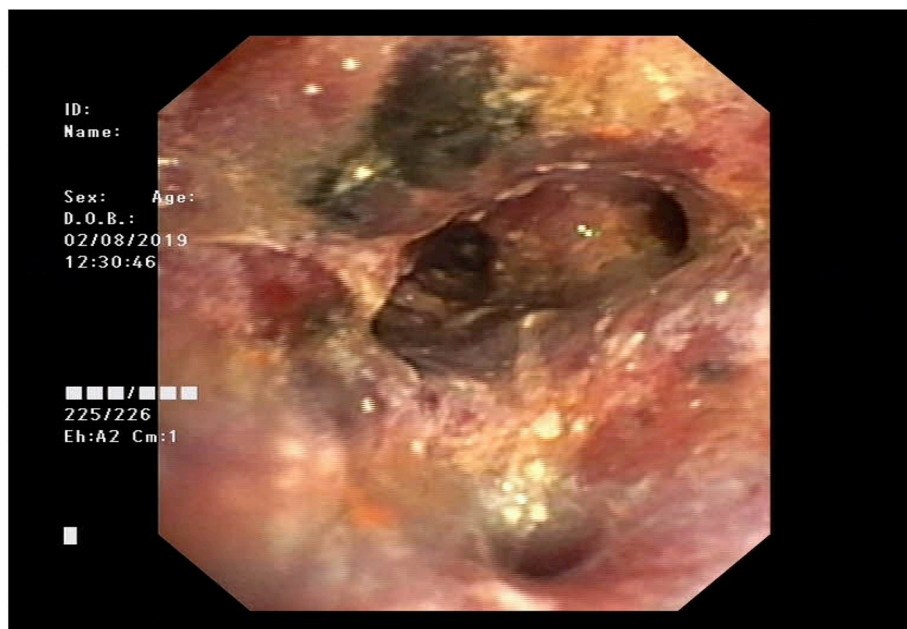


Fig. 2. Initial bronchoscopy showing mucosal edema, necrosis & hemorrhage.

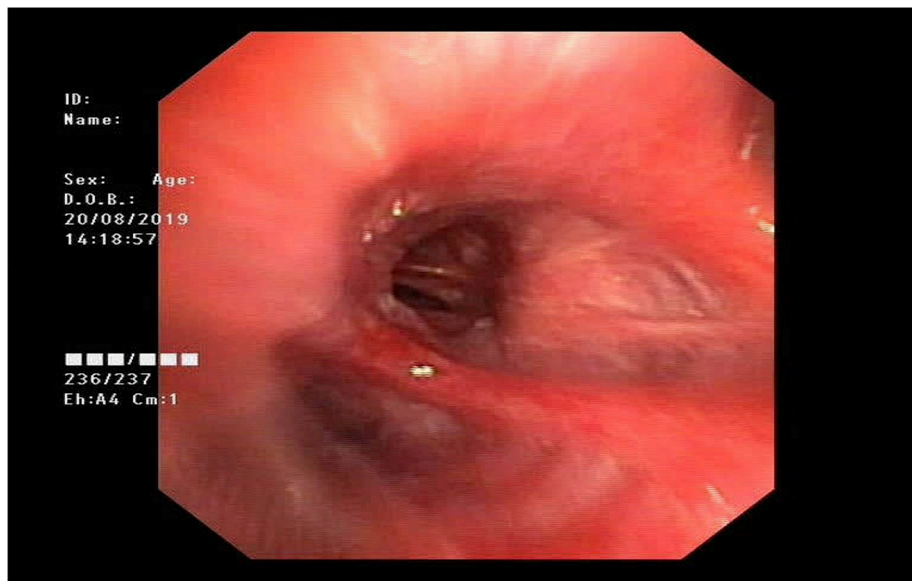


Fig. 4. Normal Mucosa On Check Bronchoscopy After a Period of 18 days.

## 6. Conclusion

Early bronchoscopy and washings of the bronchial mucosa can help to reduce the harmful effects of pill constituents on the bronchial mucosa. A high index of suspicion and good history taking is necessary for diagnosis of pill aspiration. Pill aspiration may be more common than commonly suspected and we must be wary of prescribing many medications not only in the elderly and susceptible, but also in normal healthy adults.

## Declaration of competing interest

The authors have no conflict of interest to report.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.rmcr.2019.100944>.

## References

- [1] G. Killian, Removal of a bone splinter from the right main bronchus by direct laryngoscopy, *Munch. Med. Asch.* 44 (1897) 86.
- [2] A. Mehta, D. Khemasuwan, A foreign body of a different kind: pill aspiration, *Ann. Thorac. Med.* 9 (1) (2014) 1–2, <https://doi.org/10.4103/1817-1737.124404>.
- [3] P. Lee, D.A. Culver, C. Farver, A.C. Mehta, Syndrome of iron pill aspiration, *Chest* (2002), <https://doi.org/10.1378/chest.121.4.1355>.
- [4] B.M. Jimenez Rodriguez, S.C. Jesús, C.M.M. López, J.M.G. Vega San Román, A. R. Ortiz, Bronchial stenosis after iron pill aspiration, *J. Bronchol. Interv. Pulmonol.* (2013), <https://doi.org/10.1097/LBR.0b013e318282415a>.
- [5] J.H. Kwak, G.W. Koo, S.J. Chung, D.W. Park, H.J. Kwak, J.Y. Moon, T.H. Kim, A case of significant endobronchial injury due to recurrent iron pill aspiration, *Tuberc. Respir. Dis.* (2015), <https://doi.org/10.4046/trd.2015.78.4.440>.
- [6] U. Caterino, P. Battistoni, S. Batzella, R. Dello Iacono, G. Lucantoni, G. Galluccio, Syndrome of iron pill inhalation in four patients with accidental tablet aspiration: severe airway complications are described, *Respir. Med. Case Rep.* (2015), <https://doi.org/10.1016/j.rmcr.2015.02.002>.
- [7] E. Kupeli, D. Khemasuwan, P. Tunsupon, A.C. Mehta, Pills and the air passages, *Chest* 147 (1) (2015) 242–250, <https://doi.org/10.1378/CHEST.14-0531>.
- [8] E. Kupeli, D. Khemasuwan, P. Tunsupon, A.C. Mehta, “Pills” and the air passages: a continuum, *Chest* 147 (1) (2015) 242–250, <https://doi.org/10.1378/chest.14-0531>.
- [9] J. Tomen, et al., Magnesium oxide pill aspiration: case report, *Chest* 54 (4) (2018) 877A, <https://doi.org/10.1016/j.chest.2018.08.790>.
- [10] J. Micallef, S. Montefort, C.M. Azzopardi, J. Galea, Two cases of aspiration of calcium tablets, *Lung India* 28 (2011) 312–314, <https://doi.org/10.4103/0970-2113.85700>.
- [11] R. Gudavalli, E. Marquez-Martin, M.S. Machuzak, T.R. Gildea, Bronchial stenosis due to potassium pill aspiration, *J. Bronchol.* (2008), <https://doi.org/10.1097/LBR.0b013e3181f1875>.
- [12] K.M. Sundar, C.G. Elliott, G.E. Thomsen, Tetracycline aspiration, *Respiration* 2001 (68) (2001) 416–419, <https://doi.org/10.1159/000050538>. *Respiration*, 68, 416–417.
- [13] V.A. Amrut Sindhu, A. Babu, R. Santosham, R. Narasimhan, Tablet in the bronchus – an unusual cause for persistent cough in a 64-year-old gentleman, *J. Assoc. Phys. India* 62 (OCT 2014) (2014) 63–65.
- [14] Cecile Punzalan, Daniel S. Budnitz, Stuart J. Chirtel, Andrew I. Geller, Olivia E. Jones, Robert P. Mozersky, Beverly Wolpert, Swallowing problems and dietary supplements: data from U.S. Food and drug administration adverse event reports, 2006–2015, *Ann. Intern. Med.* (2019), <https://doi.org/10.7326/M19-0947>. Epub ahead. Retrieved from.