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Case Report

Aspiration- Related Fever: Discrepancy between Fever and Imaging on Aspiration

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Abstract A debilitated 63-year-old man with Alzheimer disease who had a 6 week-history of high-grade fever of unknown etiology became afebrile 1 week after gastrostomy was performed to prevent aspiration. There was no active infiltration on imaging studies, such as chest X-ray films and computed tomography of the chest. Thus, this clinical condition could be described as aspiration-related fever. In other words, imaging studies may not be the gold standard for diagnosing fever related to aspiration.

Key words : aspiration pneumonia, fever of unknown origin, aspiration-related fever

Introduction

We present a new hypothesis of a possible discrepancy between the patient's fever and the results of imaging studies in cases of aspiration.

Case report

A debilitated 63-year-old man with Alzheimer disease was admitted to our hospital with a 2-day history of high-grade fever. He had no cough or other symptoms. Physical examination demonstrated normal respiratory sounds, no heart murmurs, and no costovertebral angle (CVA) tenderness. Laboratory studies showed leukocytosis (14,600/ μ l), elevated serum levels of C-reactive protein (CRP ; 7.36 mg/dl), and pyuria. A chest X-ray film obtained 3 days after the fever appeared was unremarkable (Fig. 1). Therefore, upper urinary tract infection (UTI) was tentatively diagnosed despite the absence of CVA tenderness, and treatment with intravenous ceftriaxone (2 g per day) was started. However,

the patient continued to have a low-grade fever 6 days later. A computed tomography (CT) scan of the chest obtained 7 days after the fever developed demonstrated no active infiltration (Fig. 2). Urine culture yielded *Proteus mirabilis* (10^6 /ml), which was sensitive to minocycline. The antibiotic treatment was accordingly changed to intravenous minocycline (200 mg/day), after which the fever resolved and serum levels of CRP decreased despite persistent pyuria. However, when minocycline was discontinued, high-grade fever recurred, and serum levels of CRP increased again. Results of further investigations, including three blood cultures and echocardiography to rule out infectious endocarditis, were unremarkable. A high-grade fever was still present 6 weeks after admission, and a chest X-ray film obtained at that time showed no active infiltration.

After being admitted, the patient was often observed choking during meals. Because he had difficulty eating without aspirating, gastrostomy was performed 6 weeks after admission. Interestingly, 1 week after gastrostomy was performed, the patient's fever resolved spontaneously without antibiotics (Fig. 3). The serum level of

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Fig. 1 Chest X-ray film obtained 3 days after the fever appeared.

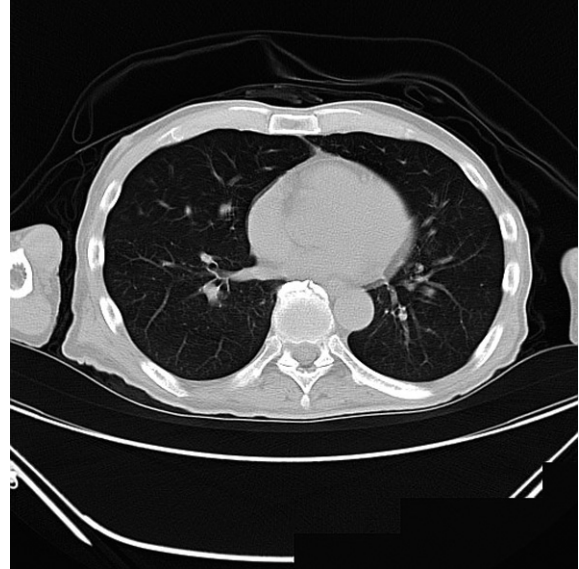


Fig. 2 Chest CT obtained 7 days after the fever appeared.

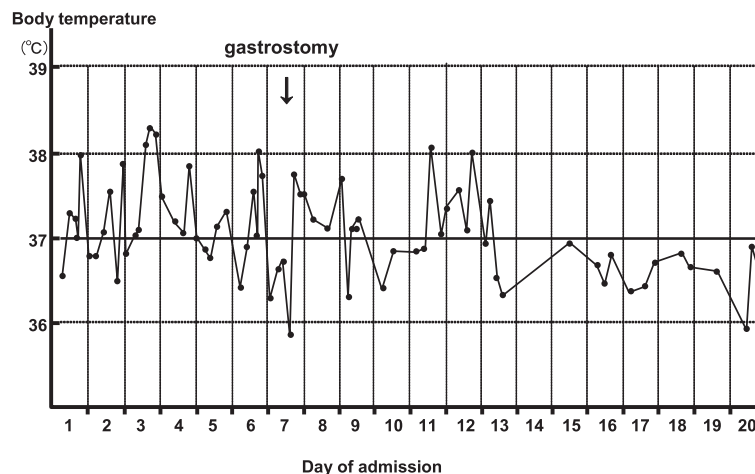


Fig. 3 Body temperature before and after gastrostomy

CRP normalized as well. We concluded that the fever could be attributed to aspiration. The patient was discharged 9 weeks after admission.

Discussion

There are two causes of aspiration pneumonia. The first is chemical stimulation by ingested acid¹⁾. The ingested acid stimulates the release of cytokines, such as tumor necrosis factor- α and interleukin 8, which lead to the development of fever²⁾. This could be described as chemical pneumonitis. Otherwise, saliva and food may cause a similar chemical pneumonitis. The second cause of aspiration pneumonia is bacterial infection³⁾. The fever in our patient appeared to

have developed mainly because of chemical pneumonitis, because the fever resolved when aspiration was prevented with gastrostomy, although antibiotics were transiently effective.

In daily primary care, elderly patients often have fever of unknown origin without definite infiltrations on chest imaging studies. In particular, bedridden patients who have sustained fractures of the femoral neck often have fevers of unknown origin. The fever resolves spontaneously or with empirically administered antibiotics. These patients may have pyuria but do not have CVA tenderness, which is a sign suggesting upper UTI. When a definitive diagnosis cannot be established, a tentative diagno-

sis of suspected UTI is often made.

Chest X-ray films or chest CT scans or both in cases of aspiration pneumonia are generally expected to show infiltrates, especially in dependent lung segments⁴⁾⁵⁾. However, the present case suggests a possible discrepancy between the patient's fever and the results of imaging studies in cases of aspiration, especially when the pneumonia is due to chemical stimulation rather than bacterial infection. Thus, because the pathology is unknown and infiltration is absent on imaging studies, this clinical condition might be more appropriately described as aspiration-related fever rather than aspiration pneumonia. To our knowledge, this hypothesis has not been previously proposed. In other words, imaging studies may not be the gold standard for diagnosing fever related to aspiration. Therefore, in primary care, many elderly patients with fevers of unknown origin likely have aspiration-related fever.

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References

- 1) Mendelson CL : The aspiration of stomach contents into the lungs during obstetric anesthesia. *Am J Obstet Gynecol* 52 : 191-205, 1946.
- 2) Matthay MA and Rosen GD : Acid aspiration induced lung injury. New insights and therapeutic options. *Am J Respir Crit Care Med* 154 : 277-278, 1996.
- 3) Finegold SM : Aspiration pneumonia. *Semin Respir Crit Care Med* 16 : 475-483, 1995.
- 4) Marom EM, McAdams HP, Erasmus JJ and Goodman PC : The many faces of pulmonary aspiration. *Am J Roentgenol* 172 : 121-128, 1999.
- 5) Franquet T, Giménez A, Rosón N, Torrubia S, Sabaté JM and Pérez C : Aspiration diseases : Findings, pitfalls, and differential diagnosis. *Radiographics* 20 : 673-685, 2000.

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(和文抄録)

発熱と画像との乖離を示唆した誤嚥性発熱の一例

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緒言：原因不明の発熱で，胸部単純 X 線写真，胸部 CT にて異常陰影を認めず，胃瘻造設後約 1 週間で解熱した症例を報告する．

症例：63 才のアルツハイマー病の男性が高熱を主訴に入院となった．咳など他の症状は認めず，膿尿を認めたため，尿路感染症の診断で抗生物質治療を施行した．しかしながら，一時的な解熱で，抗生物質中止後は再度発熱が続いた．胸部単純 X 線写真，胸部 CT では肺炎を示唆する陰影は認めなかった．血液培養も陰性であった．発熱は約 6 週間続いたが，食事中的むせ込みに対する胃瘻造設後約 1 週間で自然に解熱し，退院となった．

考察：誤嚥性肺炎は，高齢者の発熱の原因として最も多い病態の一つであり，胸部 X 線写真もしくは胸部 CT にて異常陰影を認めると言われている．また高齢者において，胸部画像診断で異常を認めず，原因が明らかでない発熱は，臨床の場でしばしば遭遇する病態である．多くは，自然に解熱するか，尿路感染症と診断され抗生物質の投与で解熱する．本症例は，胃瘻による誤嚥防止により解熱しているが，病理学的に肺炎の有無は不明であり，誤嚥性発熱と表現できる病態と考えられた．これらのことは，誤嚥における画像と発熱の乖離の可能性を意味し，画像診断が誤嚥に関連した発熱の確定診断の手段とは必ずしもならないことを示唆する．

結語：高齢者における原因不明の発熱の原因として，画像所見陰性の誤嚥性発熱の存在を示唆する症例であった．