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Bronchioloalveolar cell carcinoma presenting as a "non-resolving consolidation" for two years

Rak oskrzelikowo-pęcherzykowy pod postacią nacieku nieustępującego w okresie 2 lat

The authors declare no financial disclosure

Abstract

Bronchioloalveolar carcinoma (BAC), a rare form of lung malignancy, is usually seen in non-smokers and women. Three distinct histological forms have been identified viz, mucinous, non-mucinous and mixed or indeterminate. The mucinous variety of BAC may present as a consolidation which is very difficult to differentiate from an infective pneumonia. We present a case of a middle aged female who was evaluated for a "non-resolving consolidation" for a period of two years. She had undergone an inconclusive bronchoscopy and had received several courses of antibiotics including anti-tuberculous therapy without relief. The size of the lesion had remained largely unchanged during this period and there was no significant clinical deterioration in the patient. Transbronchial biopsy done on presentation revealed BAC of the mucinous variety. BAC presenting as a large consolidation without significant change for a period of two years has rarely been documented in the literature.

Key words: bronchioloalveolar carcinoma, lung cancer, mucinous form, non-resolving consolidation

Pneumonol Alergol Pol 2015; 83: 208–211

Streszczenie

Rak oskrzelikowo-pęcherzykowy, rzadka postać nowotworu występuje częściej u osób niepalących i u kobiet. Wyróżnia się trzy postacie histopatologiczne: śluzową, nieśluzową oraz mieszaną lub nieokreśloną. Odmiana śluzowa może przebiegać pod postacią nacieku trudnego do zróżnicowania z zapaleniem płuc. Przedstawiamy przypadek raka oskrzelikowo-pęcherzykowego u kobiety diagnozowanej przez 2 lata z powodu nieustępującego nacieku. Początkowo wykonano u pacjentki badanie bronchofiberoskopowe, które nie wyjaśniło przyczyny. Była kilkakrotnie nieskutecznie leczona antybiotykami oraz odbyła leczenie przeciwgruźlicze, które również nie przyniosło poprawy. Rozmiar nacieku nie ulegał zasadniczym zmianom w ciągu całego okresu obserwacji a stan pacjentki nie ulegał pogorszeniu. Przezoskrzelowa biopsja płuca wykonana przy przyjęciu wykazała odmianę śluzową raka oskrzelikowo-pęcherzykowego. Opisano dotychczas zaledwie pojedyncze przypadki raka oskrzelikowo-pęcherzykowego przebiegającego w postaci nieustępujących w tak długim okresie rozległych nacieków w płucach.

Słowa kluczowe: rak oskrzelikowo-pęcherzykowy, rak płuca, postać śluzowa, nieustępujący naciek

Pneumonol Alergol Pol 2015; 83: 208–211

Introduction

The term "bronchioloalveolar carcinoma" (BAC), coined by Liebow in 1960 [1], represents a rare form of lung malignancy which constitutes about 4 % of the total primary lung cancers [2]. World Health Organisation lung tumour classification recognises bronchoalveolar carcinoma"

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DOI: 10.5603/PiAP.2015.0033
Received: 14.10.2014

ISSN 0867–7077

(BAC), an infrequently seen clinical entity as a subtype of adenocarcinoma with three distinct histological forms: mucinous, non-mucinous and mixed or indeterminate [3]. Recently, it has been suggested that BAC may be reclassified under adenocarcinoma [4] however; this term is still widely accepted and in current usage. BAC is peripherally located, multifocal and seen more commonly in females and non-smokers [2, 5].

Radiologically, BAC has a varied presentation, with peripherally located, lobulated or ill marginated solitary pulmonary nodule being the most common one. It may also present as solid or partly solid nodules with ground glass opacification [2, 5, 6]. The mucinous form often presents radiologically as a consolidation, which may be difficult to distinguish from pneumonia of an infective origin [2, 5, 7, 8]. Occasionally, the consolidation in BAC may remain unchanged for months [9]. Fluctuant extent of consolidation too has been documented [10].

We present a middle aged female referred to us for evaluation of a "non-resolving consolidation" of the left lower lobe for two years. The consolidation was confirmed as a BAC with a repeat transbronchial biopsy. BAC, presenting as a consolidation of a considerable size, which remained largely unchanged for so long without clinical deterioration, has rarely been documented in the literature.

Case report

A 55-year-old housewife, a never smoker, human immunodeficiency virus negative, was referred to our Institute for evaluation of a "non-resolving consolidation" over the past 2 years, characterised by cough and exertional dyspnoea associated with minimal mucoid sputum production. Malaise, anorexia and weight loss were also present. She also complained of left-sided dull aching chest pain without radiation or relationship to coughing and deep breathing. There was no history of haemoptysis, dysphagia or hoarseness of voice. The patient had received several courses of antibiotics without relief. On the basis of her symptomatic and radiological profile, despite sputum stains and cultures being repeatedly negative for Mycobacterium tuberculosis, she had received anti-tuberculous therapy (ATT) twice without relief. Fiberoptic bronchoscopy (FOB), including biopsies done 1 year prior to presentation were inconclusive.

Examination revealed a middle aged lady in no acute distress. Diaphragmatic excursion was equal on both sides but breath sounds were decreased in the left basal area of the chest along with fine inspiratory crepitations.

Haemogram and blood biochemistry were within normal range. A review of nine chest radiographs done over a period of two years revealed a persistent homogenous opacity in the left mid and lower zones and a right parahilar opacity which was largely unchanged over this period, suggestive of a "non-resolving consolidation". The patient had undergone a contrast enhanced computed tomograms (CT) of thorax 24 months prior to presentation which revealed a consolidation with an "open bronchus sign" in the left lower lobe and a right parahilar opacity (Figs 1A, 2A). CT thorax done on presentation demonstrated the continued presence of the consolidation in the left lower lobe without any significant change in the size (Figs 1B, 2B). Cavitation which was visible in the earlier scan had increased in the subsequent one (Figs 1A, 1B). The consistency of the right parahilar opacity had changed from solid lesion to ground glass opacities (Figs 2A, 2B). Spirometry was within normal limits.

FOB done on presentation did not visualise any gross abnormality. Bronchial aspirate was negative for acid fast bacilli and cultures did not yield any aerobic organisms including M. tuberculosis. Pathogenic fungi were not isolated. However, transbronchial lung biopsy revealed mucin secreting cells growing in a lepidic fashion along alveolar walls. Alveolar spaces were distended with small detached clusters of tumour cells seen in a few spaces. Individual cells showed uniformity with abrupt transition to normal alveolar lining epithelium with no evidence of parenchymal or vascular invasion (Fig. 3). A diagnosis of mucinous type of bronchioloalveolar cell carcinoma was made.

Once the diagnosis was confirmed, the patient was referred to a tertiary oncology centre and with that, she was lost to follow up.

Discussion

The mucinous type of BAC is characterised histologically by proliferation of goblet cells or mucin-producing columnar tumour cells without stromal, vascular or pleural invasion, with an abrupt transition between tumour cells and normal alveoli [2, 3]. These cells produce profuse amounts of extracellular viscous mucus that may fill the alveoli [2, 5–8]. Radiologically, this leads to a consolidation like picture, as was seen in our patient [2, 5–8]. Although our patient had a large

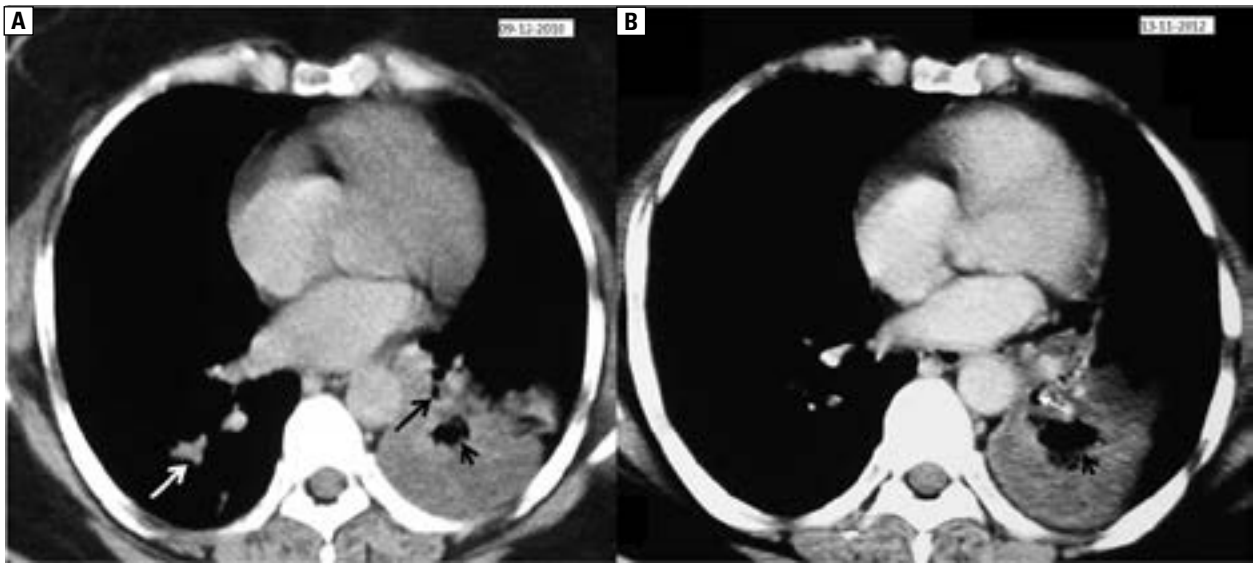

Figure 1. A — HRCT thorax (mediastinal window) done 2 years prior to presentation showing left-sided lower lobe consolidation with "open bronchus sign" (black arrow) and central cavitation (arrow head). Right sided lower lobe opacity can also be seen (white arrow); **B** — HRCT thorax (mediastinal window) at presentation, showing left-sided lower lobe consolidation with "open bronchus sign" (white arrow) and increased cavitation (black arrow head)

Rycina 1. A — badanie tomograficzne klatki piersiowej (okno śródpiersiowe) wykonane 2 lata przed rozpoznaniem wykazuje lewostronny naciek płata dolnego z widocznym drożnym oskrzelem (długa czarna strzałka), oraz centralny rozpad (krótka czarna strzałka). Po prawej stronie widoczny naciek dolnego płata (biała strzałka); **B** — badanie tomograficzne klatki piersiowej (okno śródpiersiowe) wykonane przy przyjęciu wykazuje lewostronny naciek płata dolnego z widocznym drożnym oskrzelem (biała strzałka), oraz większy rozpad (czarna krótka strzałka)

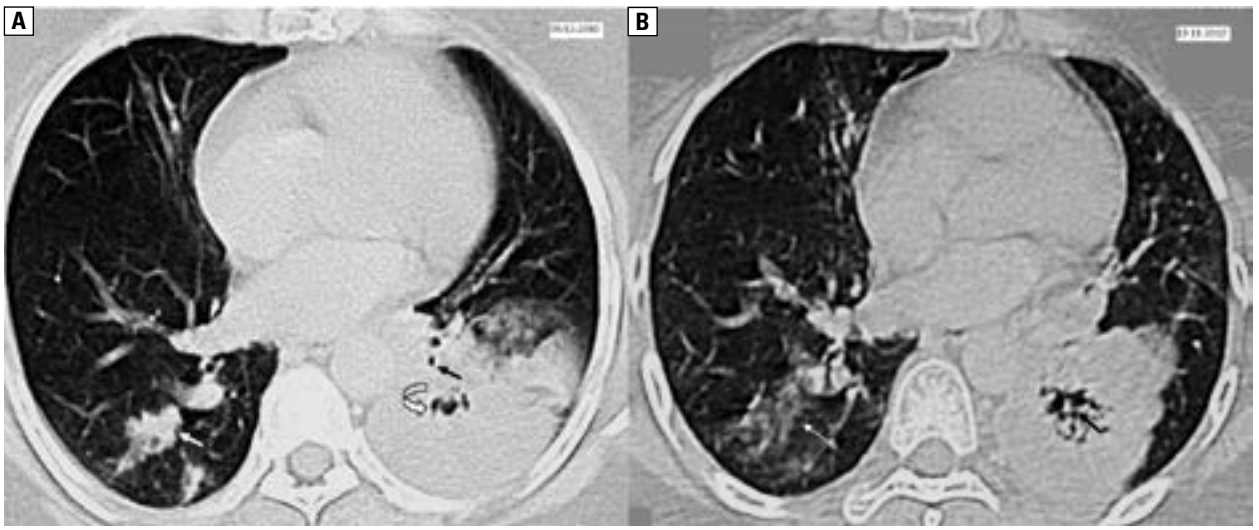

Figure 2. A — HRCT thorax (lung window) done 2 years prior to presentation, showing left side lower lobe consolidation with "open bronchus sign"(black straight arrow) and central cavitation (white curved arrow). Right lower lobe opacity can be seen (white arrow); **B** — HRCT thorax (lung window) at presentation, showing left side lower lobe consolidation with increased cavitation (black arrow). The consistency of the right lower lobe opacity has changed from solid to ground-glass (white arrow)

Rycina 2. A — badanie tomograficzne klatki piersiowej wysokiej rozdzielczości (okno płucne) wykonane 2 lata przed rozpoznaniem, wykazuje lewostronny naciek płata dolnego z bronchogramem powietrznym (czarna strzałka), oraz centralny rozpad (biała zakrzywiona strzałka). W prawym płucu również widoczny naciek (biała prosta strzałka); **B** — badanie tomograficzne klatki piersiowej wysokiej rozdzielczości (okno płucne) wykonane przy przyjęciu, wykazuje lewostronny naciek płata dolnego z większym rozpadem (czarna strzałka). Wysycenie zmiany po stronie prawej zmieniło się w czasie — wcześniej zmiany dobrze wysycone, obecnie o typie mlecznej szyby (biała strzałka)

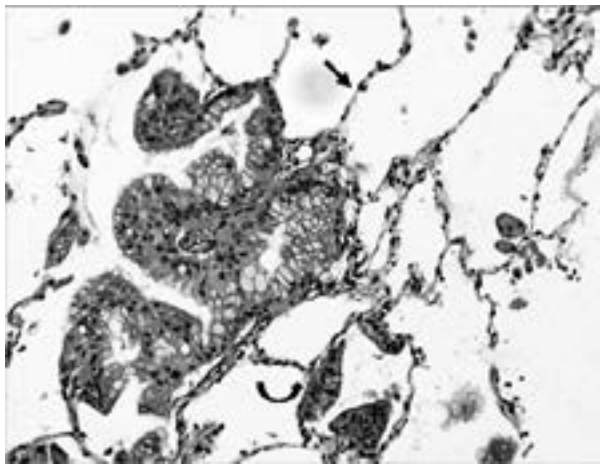

Figure 3. Photomicrograph of histopathology section showing abrupt transition between malignant cells (curved arrow) and normal alveoli (straight arrow) (H + E stain, 100×)

Rycina 3. Obraz mikroskopowy preparatu histopatologicznego pokazujący nagłe przejście pomiędzy komórkami nowotworowymi (zakrzywiona strzałka) a prawidłową strukturą pęcherzyka (prosta strzałka) (barwienie H+E, 100×)

consolidation, she did not experience bronchorrhoea or hypoxaemia. [2, 5, 6].

Radiologically, BAC has a protean manifestation. Solitary pulmonary nodule is seen in up to 43 % of the patients, followed by airspace disease (30%) and multiple nodules (27%) [2, 5, 6, 11]. Cystic disease and cavitation may also be associated with both nodular as well as airspace disease [2, 5, 6, 11]. The air space disease is difficult to differentiate from a consolidation of an infective pneumonia [2, 5–11]. Most consolidations in BAC are peripheral in location and cause bulging of the fissures, probably due to mucin production [5–8]. The "open bronchus sign" (Figs 1A, B, 2A), caused by aerated bronchi surrounded by alveoli filled with tumour cells and mucin is thought to be characteristic of BAC. However, this is not considered to be diagnostic as it can also be seen in an infective pneumonia [5–8]. The size of small lesions in BAC is known to grow slowly and may even remain stable for months [9]. However, in our case, BAC presented as a large non-resolving consolidation, involving most of the left lower lobe without clinical deterioration or a significant change in the size of the lesion, for a period of approximately 2 years, a feature which is very unusual.

Initially the consolidation in our patient had a peripheral portion of ground glass haze in the left lower lobe (Fig. 2A). After 2 years, the ground glass haze in the left lower lobe was largely replaced by solid consolidation (Fig. 2B). However, in the right lower lobe, initially there was a consolidation (Fig. 2A) which 2 years later largely changed to ground-glass (Fig. 2B). This fluctuation in size and attenuation of the opacities has been described in BAC. When serial scans show such a pattern, this should arouse suspicion of BAC [9, 10]. Development of cavitation with time, as seen in our patient, has also been described in BAC presenting as a consolidation [9].

Our case highlights the fact that BAC can present as a non-resolving consolidation which rarely can persist for months and years. It is imperative to distinguish this condition from a consolidation of an infective process as there are grave differences in the prognosis and management of both these two conditions.

Conflict of interest

The authors declare no conflict of interest.

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