hepatic portal system and the liver parenchyma. This technique has been proposed for screening of NEC in preterm infants with abdominal symptoms of unclear aetiology, as in many cases, like we observed in our patients, the gas was detectable before systemic involvement, which allowed the differentiation of NEC from other entities with a sensitivity of 82% and a specificity of 96%.[6] Detection of portal gas in the ultrasound scan is not independently associated with the need of performing surgery, which supports the hypothesis that this feature develops in the early stages of disease.[3] In conclusion, we believe that selective screening of NEC by point-of-care ultrasound is a strategy that could improve early diagnosis and should be investigated in specific research studies.

Appendix A. Supplementary data

The supplemental material for this article can be found in its online version, available at doi:10.1016/j.anpedi.2020.01.016.

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Protracted bacterial bronchitis: a condition to be considered in children☆

Bronquitis bacteriana persistente, una entidad a considerar en pediatría

To the Editor:

Respiratory tract infections are the most frequent presenting complaint in primary care. Although it is usually an unimportant manifestation in the paediatric population, cough, when persistent, generates anxiety in patients and their families, leading to a significant consumption of health care resources.[1,2]

Some case series in the literature that include hospitalised patients had led to the hypothesis that protracted bacterial bronchitis (PBB) could be the leading cause of chronic cough in preschool-aged children (up to 40% of cases).[1,2,4–6] Although PBB has been established as a clinical entity only recently (2006), similar presentations have been described for decades under the label of ''chronic bronchitis of childhood''.[3] There is a low awareness of this disease in our country, and it used to not be included in the differential diagnosis of chronic cough, either due to underdiagnosis, inadequate treatment or a lower actual incidence than described in the primary care setting.[1–6]

We conducted a retrospective review of the cases of 3 patients with suspected PBB managed in a paediatric primary care clinic in Zaragoza (serving 1415 children aged 0–14 years) between September 2018 and September 2019. Our main objective was to increase awareness in clinicians of a disease defined only recently and for which there is a low level of suspicion in everyday clinical practice.

Case 1. Girl aged 5 years with a history of bronchial hyperresponsiveness undergoing treatment with montelukast, that developed a persistent wet cough in the context of

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Table 1 Summary of the characteristics of the presented cases.

	Case 1	Case 2	Case 3
Age	5 years	4 years	2 years
Personal history of asthma	Yes	Yes	Yes
Lung auscultation	Diffuse expiratory wheezing	Diffuse wheezing and rhonchi	Diffuse rhonchi
Chest radiography	Normal	Normal	Normal
Previous treatment	Montelukast[a]	Inhaled corticosteroid[a]	Inhaled corticosteroid[a]
	Inhaled corticosteroid[a]	Inhaled salbutamol	Inhaled salbutamol
	Oral corticosteroid	Oral corticosteroid	Oral corticosteroid
	Inhaled salbutamol	Oral azithromycin	Oral
Time to initiation of antibiotherapy	4 weeks	5 weeks	5 weeks
Time to resolution of symptoms	$\leq$ 48 h	$\leq$ 24 h	$\leq$ 48 h
Antibiotic regimen	Amoxicillin-clavulanic acid	Amoxicillin-clavulanic acid	Amoxicillin-clavulanic acid
	8:1	8:1	8:1
	80 mg/kg/day	80 mg/kg/day	80 mg/kg/day
	3 doses/day	3 doses/day	3 doses/day
	14 days	14 days	14 days
Recurrence	No	No	No
Time	7 months	9 months	4 months

[a] Maintenance therapy.

cold symptoms. The salient findings of the physical examination were diffuse expiratory wheezing in absence of breathing difficulty or hypoxaemia, leading to initiation of treatment with inhaled salbutamol and oral steroids, which did not improve symptoms. Poorly controlled asthma was suspected, so inhaled budesonide was added for maintenance therapy. The chest radiograph was normal. Given the persistence of the cough at 40 days from onset, a course of oral treatment with amoxicillin-clavulanic acid was prescribed, which achieved resolution of symptoms within 48 h.

Case 2. Boy aged 4 years with a history of bronchial hyperresponsiveness currently treated with inhaled budesonide that had onset with persistent wet cough in the context of a febrile cold-like illness. The main findings of the examination were diffuse wheezing and rhonchi in the absence of alarming signs. The initial treatment was inhaled salbutamol combined with an oral corticosteroid, with addition of azithromycin at a later time due to the lack of improvement. The chest radiograph was normal. On account of the persistence of the wet cough for 4 weeks, amoxicillin-clavulanic acid was added, which achieved an improvement in symptoms in the first 24 h.

Case 3. Girl aged 2 years with a history of bronchial hyperresponsiveness that developed a persistent wet cough in the context of a respiratory tract infection treated with inhaled salbutamol, an oral antihistamine (springtime) and an oral corticosteroid, without a favourable response. Maintenance therapy with inhaled budesonide was initiated due to the persistence of the cough. Since the patient did not improve in the 5 weeks that followed, amoxicillin-clavulanic acid was added, with evidence of clinical improvement within a few days (Table 1).

Protracted bacterial pneumonia refers to a chronic infection of the lower respiratory tract manifesting as wet or productive cough lasting more than 4 weeks that resolves with antibiotic treatment in the absence of another diagnosis. Although it may appear at any age, its incidence is highest in children aged less than 6 years.[1–6]

The aetiology of PBB is unknown, but it is associated with abnormalities of mucociliary clearance, immune defects, structural anomalies and the formation of bacterial biofilms. The main causative agents are nontypeable *Haemophilus influenzae*, *Streptococcus pneumoniae* and, less frequently, *Moraxella catarrhalis*.[1–6]

Its natural history consists of onset with cold-like symptoms and a lower respiratory tract infection that resolve spontaneously with the exception of an isolated persistent wet cough. The findings of the physical examination, imaging tests and pulmonary function tests are normal or nonspecific. Its manifestations may be confused with asthma, and up to 30% of cases occur in asthmatic patients who will not improve until the infection is treated appropriately.[4] The differential diagnosis should include rhinosinusitis, although the persistence of abnormal breath sounds on auscultation supports the diagnosis of PBB.

The criteria applied for diagnosis were presence of wet cough of more than 4 weeks' duration with isolation of a bacterial pathogen from bronchoalveolar lavage with more than 10^4 colony-forming units, absence of evidence of concomitant infection by *Bordetella pertussis* or *Mycoplasma pneumoniae*, and resolution of symptoms within 2 weeks with oral antibiotherapy. Since a flexible bronchoscopy examination is not indicated routinely in children presenting with wet cough, we substituted this test by noting the absence of other signs and symptoms associated with chronic cough, such as dyspnoea, haemoptysis and chest pain.[1–6]

The recommended antibiotic treatment is amoxicillin-clavulanic acid for a minimum of 2 weeks, which may be prolonged to up to 4–6 weeks in some children. Some of the proposed alternative treatments include cephalosporins, trimethoprim, sulfamethoxazole or macrolides.[1–6]

The response to treatment is very good and should be considered confirmation of the diagnosis. However, recurrences are frequent (in up to 25% of cases) and may require several courses of antibiotherapy. A poor response or recurrent episodes require ruling out other diseases. There are similarities between PBB, suppurative lung disease and bronchiectasis, which could be conceived of as different stages in a spectrum of airway disease.[1–6]

In conclusion, PBB should be considered in children presenting with chronic wet cough in absence of clinical or radiological signs suggestive of a different diagnosis. However, the clinical criteria must be applied very strictly and accurately, given their nonspecificity, to prevent unnecessary use of antibiotics and the associated emergence of drug resistance (in our clinic, the criteria were only met by 3 patients out of a caseload of 1415 children in the course of 1 year).

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Impact of regional laws on firework accident prevention☆,☆☆

Impacto de la normativa autonómica para la prevencion de accidentes pirotécnicos

To the Editor:

Accidents in the paediatric population are an important issue due to both their high frequency and their potential impact on health, and they are the leading cause of death in children aged more than 1 year.[1,2] Families, schools and the government are essential agents in providing minors with safe environments, promoting the development of skills to manage risks successfully and enacting regulations aimed at preventing accidents in this age group.

Royal Decree 989/2015, of 30 October in Spanish law, which regulates fireworks, ammunition and explosives, establishes 8 types of pyrotechnic products, of which only those in categories F1, F2 and F3 can be used for recreational purposes.[3] Products in category F1 are considered to present very low hazard and may be used by individuals aged 12 years or older, those in category F2 are considered a low hazard and may be used by individuals aged 16 years or older, and those in category F3 are considered a medium hazard and can only be used by adults aged 18 years or older. Regional regulations at the autonomous community level[4] lower the age established at the national level to as young as 8 years for category F1 and 10 years for category F2, although in every case current regulation prohibit the sale and purchase of firecrackers to children aged less than 12 years. For age reductions to be applicable, a written authorization by the parents or legal guardians is required. This authorization does not need to be filed with any governmental agency, but it must be carried by the child at all times.

The aim of the study was to describe the characteristics of firework-related accidents managed in the paediatric emergency department of a tertiary care hospital in an autonomous community with a lower age limit for the use of pyrotechnic products.

Between January 2014 and December 2018, 36 children aged less than 15 years sought care for firework-related injuries, with most cases clustered around the week of local festivities. The mean age of the patients was 8.7 years (standard deviation, 3.66; median, 9 years; range, 1–14 years), and 63.89% were male. Of the total cases, 38.8% occurred in children aged less than 8 years, revealing noncompliance not only with nationwide policy but also regional policy. In most cases (91.6%) the accident took place in the afternoon

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