


## INSTRUCTIVE CASE

## Pandemic: Presentation of non-Covid cases – Delay in emergencies in children

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### Case Report

Covid-19 has significantly impacted health service provision, resulting in thousands of deaths world-wide. The Irish Covid-19 experience began on the 29 February, with confirmation of the first case in Ireland. As of 11 June, there are 25 231 confirmed cases of Covid-19 and 1695 Covid-19-related deaths in the Republic of Ireland.<sup>1</sup> Of the confirmed cases, only 1.27% have been identified in the paediatric population (<14 years).<sup>2</sup>

It appears that the paediatric population are less affected by severe infection with Covid-19 than their adult counterparts.<sup>3</sup> Deaths reported in children remain extremely rare. However, there is suggestion globally of increased morbidity from delayed diagnosis and treatment secondary to delayed health-care presentation of non-Covid illness.<sup>4</sup>

We aim to highlight the early impact of the Covid-19 pandemic on non-Covid-related childhood illnesses. We outline three paediatric cases which presented to University Hospital Limerick, a level 2 regional centre, catering for approximately 100 000 children in the mid-west of Ireland, during this pandemic.

A literature review was performed. The medical notes, blood work, radiological reports and images of each patient were reviewed. Written consent was obtained.

All three cases were significantly unwell on presentation to hospital, with complex pathologies requiring multi-disciplinary management. Each of these cases had symptoms for a minimum of 7 days prior to presentation to the emergency department (ED), with varying levels of general practitioner (GP) contact. The parents of all three children felt that the timing of their presentation to the ED had been delayed by the Covid-19 pandemic.

#### Key Points

1 This study offers a novel insight in to how the pandemic is affecting the paediatric population with non-Covid-related illnesses. It highlights how the restructuring of health services and 'pandemic-fear' in parents can lead to delays in presentation to hospital, with resultant increased severity of illness.

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### Case 1

#### History

An 8-year-old girl presented directly to the ED with a 2-day history of headache, tachypnoea, abdominal pain and vomiting, on a background of a 3-week history of polyuria, polydipsia and weight loss. She was not registered with a GP and she was unable to receive an appointment during the lockdown.

#### Examination

She appeared critically unwell. She was tachypnoeic (respiratory rate 40/min). Kussmaul breathing was noted. Her capillary refill time was prolonged (5–6 s). Her Glasgow Coma Score was 14/15. She was severely dehydrated.

#### Clinical course

Her point-of-care blood glucose was 21.3 mmol/L with ketones of 5.4 mmol/L. Her blood gas on presentation showed a severe metabolic acidosis (pH 6.86, Base Excess –30, HCO<sub>3</sub> 6.5, lactate 2.5). She was managed in the paediatric high dependency unit according to the departmental diabetic ketoacidosis protocol, with intravenous (IV) fluids, an insulin infusion and IV potassium supplementation. She made a complete recovery.

#### Diagnosis

Severe diabetic ketoacidosis (new-onset type 1 diabetes mellitus).

### Case 2

#### History

An 8-year-old boy presented to the ED with a 9-day history of a cough, fever and rigours. He had been assessed through virtual telephone consultation with his GP on multiple occasions prior to presentation to the ED.

#### Examination

He was tachycardic with a normal respiratory rate and normal oxygen saturations. Crepitations were audible at the left lung base.

#### Clinical course

Initial blood work showed an elevated C-reactive protein of 21 mg/L. His full blood count was unremarkable. He was hyponatraemic at 128 mmol/L, with the remainder of his electrolytes and renal function within normal ranges. A chest X-ray showed an extensive airspace infiltrate throughout the left mid zone with elevation of the hemidiaphragm and atelectasis, consistent with pneumonia. Covid-19 testing with both a nasopharyngeal swab and sputum sample were negative. His sputum culture, blood culture and urinary pneumococcal antigen test were also negative.

He was treated with IV cefotaxime and clindamycin, with oral azithromycin, and restricted IV fluids. He subsequently deteriorated, requiring oxygen therapy through nasal cannulae. He developed a pleural rub and reduced air entry at the left base. A repeat chest radiograph highlighted increasing opacification of the left hemithorax (Fig. 1). Further imaging with a computed tomography (CT) thorax showed an extensive consolidation on the left side with an associated large pleural effusion (Fig. 2). He was transferred to a level 3 centre for chest drain insertion. He made a full recovery following a prolonged course of IV and oral antibiotics. Serology was subsequently positive for mycoplasma immunoglobulin M, with positive cold agglutinins noted on haematology.

**Diagnosis**

Left-sided mycoplasma pneumonia with a parapneumonic effusion and syndrome of inappropriate anti-diuretic hormone.

**Case 3**

**History**

A 6-year-old boy presented with a 1-week history of bilateral conjunctivitis, fever, right otalgia, sore throat and a 1-day history of right eye swelling. On day 4 of illness, he attended his GP and was prescribed a course of oral co-amoxiclav. Two days later he re-presented to his GP with peri-orbital swelling and was prescribed oral clarithromycin and fucithalamic eye drops. He subsequently developed significant right peri-orbital swelling and erythema. After 7 days of symptoms, he attended ED.

**Examination**

He was febrile and tachycardic. He had periorbital swelling, erythema, tenderness of the right eye with purulent discharge and mild proptosis. He had intact ocular mobility, with painful eye movements.

**Clinical course**

Blood work showed an elevated C-reactive protein (57 mg/L) with a normal full blood count. A CT orbits showed a right pre- and post-septal cellulitis, with a secondary proptosis. He was



**Fig 1** A chest radiograph highlighting opacification of the left hemithorax.



**Fig 2** A computed tomography thorax highlighting an extensive consolidation on the left side with an associated large pleural effusion.

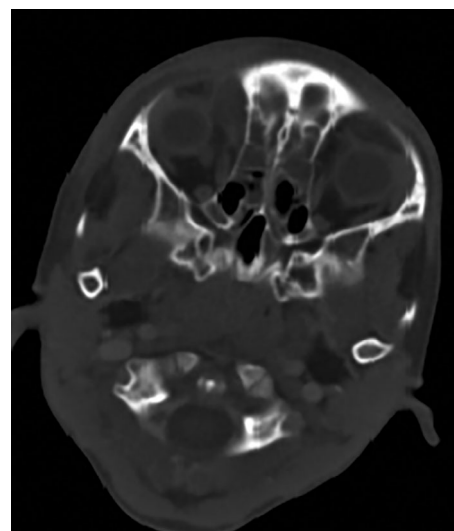
managed medically with IV cefotaxime, flucloxacillin and metronidazole, with topical fucithalamic ointment and chloramphenicol drops. He showed no clinical improvement following 48 h of medical management. He developed restricted eye movements. Repeat CT imaging outlined an enlarging intra-orbital collection and evolving abscess formation (Fig. 3). He required incision and drainage and a 14-day course of IV antibiotics. He made a complete recovery.

**Diagnosis**

Right post-septal orbital cellulitis, with abscess formation.

**Discussion**

The media have identified a potential fear and reticence among the public of attending hospitals. This has potentially resulted in a delay in presentations of adult patients with stroke.<sup>5</sup> Adult data



**Fig 3** A computed tomography orbits highlighting an intra-orbital collection and evolving abscess formation.

on acute coronary syndromes also appear to suggest that fewer patients are presenting.<sup>6</sup> Data in our hospital shows that there has been a 51% reduction in presentations to the paediatric ED during the month of March, compared to 2019. Similarly, significant decreases (range 73–88%) in paediatric ED presentations during the national Italian lockdown compared with the same period in 2019 have been reported.<sup>7</sup> Lazzarini *et al.* highlight a case series of 12 paediatric patients with delayed presentation to the health service in Italy. Of this small series, half of the patients required intensive care and four children died. In all cases, parents reported avoiding attending hospital due to fear of contracting Covid-19. This trend was replicated in our case series, with all parents reporting reticence in attending hospital secondary to fear of Covid-19 acquisition.

The ‘fear factor’ is not a new phenomenon in the history of pandemics.<sup>8</sup> Shultz *et al.* describe the negative impact of fear and ‘fear-related behaviours’ during the 2013–2016 Ebola outbreak in Western Africa. This may lead not only to amplification of the spread of disease, but also a delay in seeking timely medical treatment for serious non-pandemic-related illnesses, as highlighted in our cases.

Covid-19 has had a profound effect on the way in which we provide health care to our paediatric patients. Factors including the cancellation of outpatient clinics, postponement of elective procedures, re-deployment of staff and reallocation of resources have all impacted patient care. Our cases highlight the impact of ‘pandemic-fear’ on the hidden toll of this outbreak: children with non-Covid-related illnesses. The public must be empowered to overcome ‘pandemic fear’ and seek prompt medical treatment for their children. We recommend that national health services and national media emphasise the importance of seeking medical advice in a timely manner for non-Covid-related symptoms in children.

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