

Thyroid storm & bulbar thyrotoxic myopathy at presentation of Graves Disease in a 22-month-old

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Summary of Clinical Case: Presentation

- 22-month female, Thai ethnicity
- Family history of autoimmune thyroid disease & diabetes
- Presenting features (history):**
- Tachycardia, hypertension
- 3 days cough & fever, 2 weeks rhinorrhoea & throat clearing
- 6 months diaphoresis & growth spurt
- Clinical assessment:**
- Diaphoretic & flushed
- HR 200bpm (NR<140bpm), BP 145/90mmHg (95th % 108/66)
- Raised JVP, bounding pulse
- RR 36bpm (<30), work of breathing, right sided crepitations
- Length 98th% (MPH 10-25th %)

| Initial Investigations | Value | Normal Range |
|------------------------|---|--------------|
| TSH | <0.005 pmol/L | 0.70-5.97 |
| ft4 | >100 pmol/L | 12.3-22.8 |
| ft3 | 45.5 pmol/L | 3.69-8.46 |
| TSH receptor Ab | >20 IU/L | <1.8 |
| TPO Ab | 343 IU/mL | 0-34 |
| Thyroid US | Diffuse enlargement, heterogeneous. No nodules. | |
| Chest X-ray | Mild Cardiomegaly | |
| ECG | Left ventricular hypertrophy, sinus tachycardia | |
| Echocardiogram | Mild left ventricular hypertrophy | |

Thyrotoxic Myopathy & Dysphagia

- Severe proximal myopathy (+ve Gowers sign) with myopathic dysphagia & aspiration confirmed on modified barium swallow (right). Myasthenia gravis investigations negative (pyridostigmine trial, MuSK/AchR Ab). Managed with NG feeds, suctioning secretions, & thyrotoxicosis treatment.
- **Clinical impression: Graves thyrotoxic proximal & bulbar myopathy with secondary aspiration pneumonia triggering thyroid storm.**
- Resolution of proximal myopathy by 6 weeks & dysphagia by 3.5 months with removal of NG



Management of Thyroid Storm



1) Carbimazole 0.9mg/kg/day started at presentation, 2) dose increased to 1.1mg/kg/day on day 6

A) Lugols iodine commenced on day 1 after deterioration, initial dose 0.3mL 8 hourly B) reduced to 0.15mL 8 hourly on day 15 and C) ceased day 19.

Propranolol commenced at presentation 0.2mg/kg/day in 3 divided doses, dose up-titrated 24-48 hourly, maximal dose 0.7mg/kg/day on day 5

Intensive care admission day 1-3 after clinical deterioration on ward (worsening tachycardia, tachypnoea, work of breathing & fevers)

What is known?

- Thyroid storm is rare in children with ~ 30 cases reported (youngest 33 months) & there is limited evidence guiding management
- Diagnosis of thyroid storm in children is complicated by the lack of paediatric-specific diagnostic criteria.
- Thyrotoxic myopathy presenting with dysphagia is rare but has been reported in adults, lasting up to 14 weeks
 - Myasthenia gravis may be associated with autoimmune disorders such as Graves disease & thus is an important differential to consider in dysphagia

What does this case add?

- Thyrotoxicosis/Graves disease should be considered as a differential in young children with tachycardia
- This is the youngest reported case of thyroid storm & only reported paediatric case of thyrotoxic myopathy presenting with dysphagia
 - Aspiration pneumonia secondary to thyrotoxic bulbar myopathy/dysphagia may precipitate thyroid storm
- Dysphagia secondary to bulbar thyrotoxic myopathy can be prolonged

