Malignant Otitis Externa

OPAT - Nottingham University Hospitals NHS Trust

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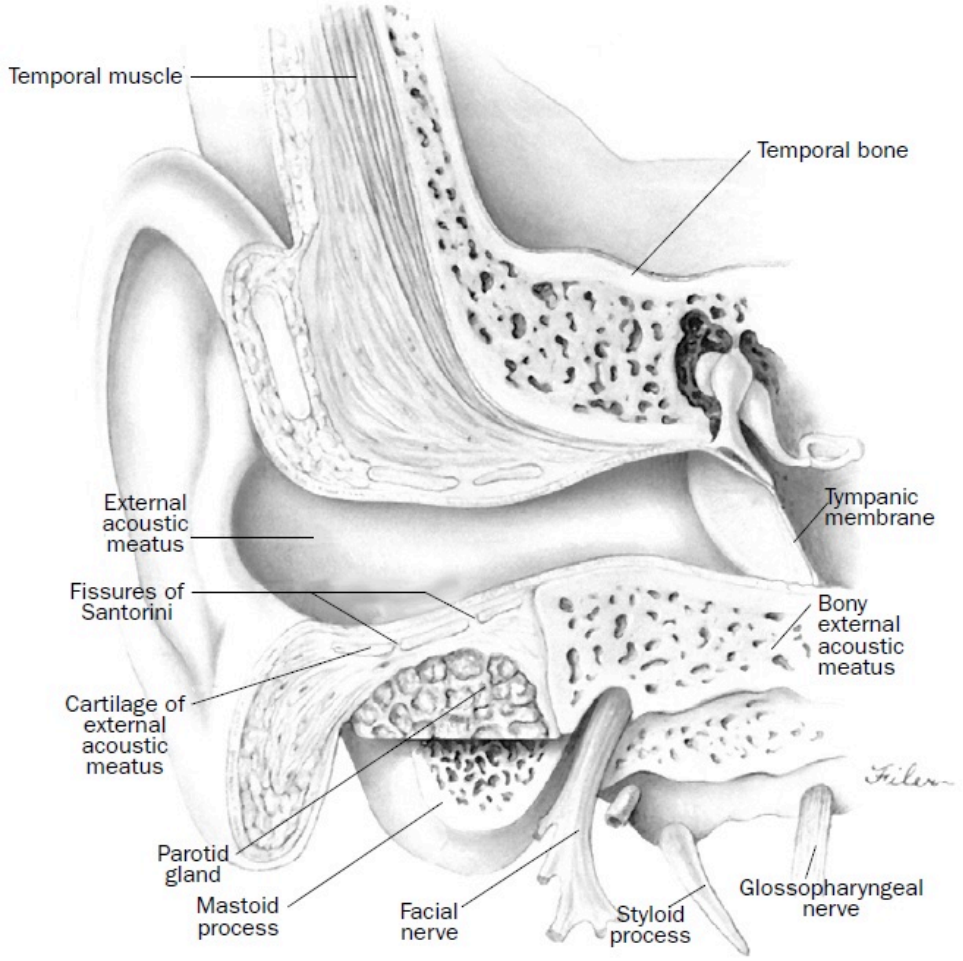
BSAC-OPAT Conference 2017

Background

- External auditory canal and skull base invasive infection
- 86-90% cases in diabetics (Rubin Grandis, Branstetter et al. 2004)
- *Pseudomonas aeruginosa* >90% cases (Rubin and Yu 1988)
- Aural water exposure linked to MOE (Ford and Courteney-Harris 1990; Zikk, Rapoport et al. 1991)



- Clinical features
  - Intractable headache
  - Otalgia
  - Otorrhea
  - Inflammation, floor of ear canal
  - Unresponsive to topical antibiotics

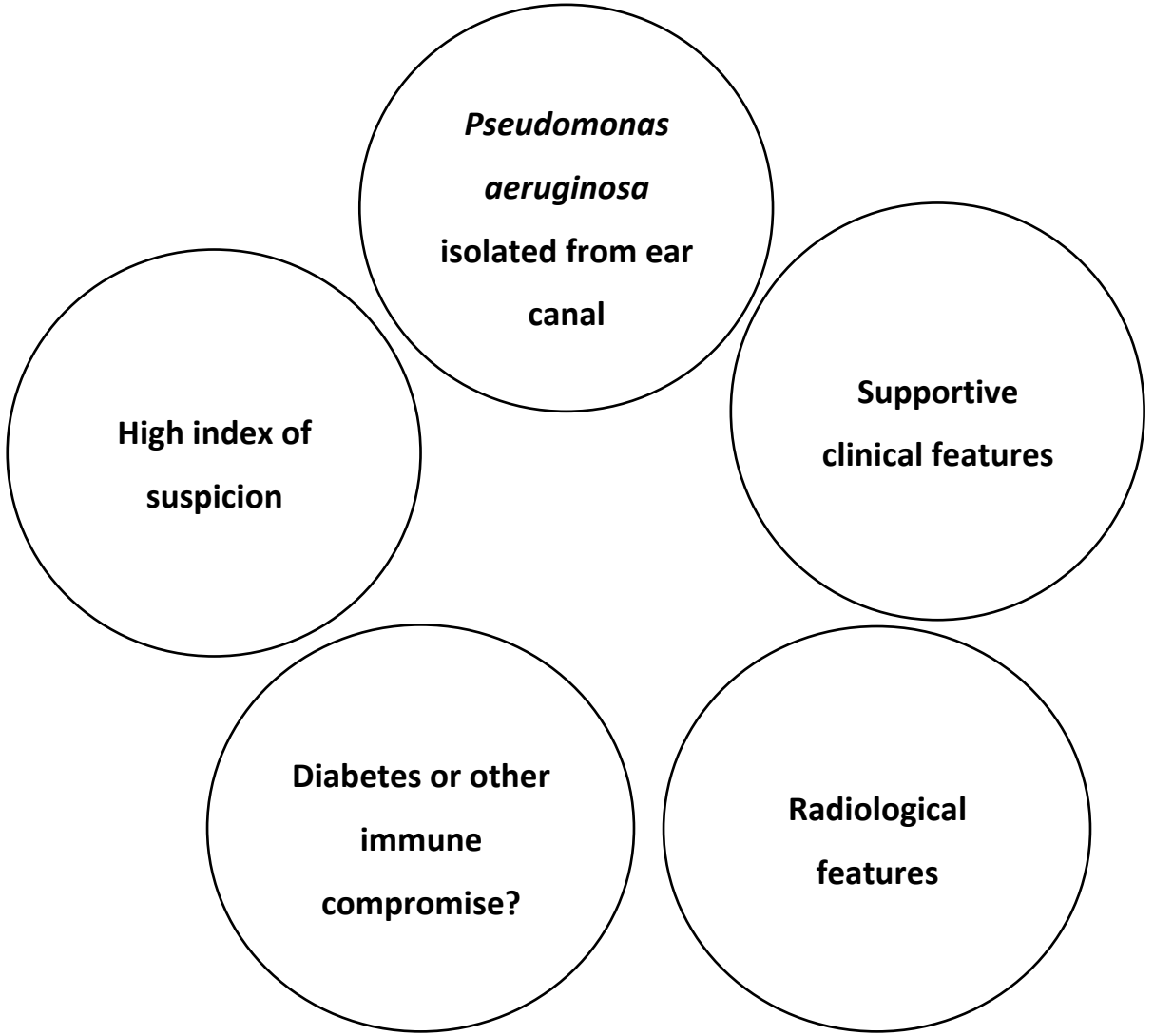
- Complications of invasive infection
  - Cranial nerve palsies
  - Venous Sinus Thrombosis
  - Meningitis
  - Brain Abscess

Lifted from Rubin Grandis J, Branstetter BFt, Yu VL. The changing face of malignant (necrotising) external otitis: clinical, radiological, and anatomic correlations. The Lancet Infectious diseases. 2004;4(1):34-9.

Diagnostic Challenges

- No single pathognomonic feature
- Typical signs of infection often absent
- Diagnosis often delayed – 6.9 months to diagnosis (Jacobsen and Antonelli 2010)
- ESR reported to be useful (Rubin, Stoehr et al. 1989)
- Radiology:
  - CT
  - MRI
  - Bone scans – sensitive but not specific
  - Gallium scans – more specific
  - Imaging cannot distinguish cancer from infection

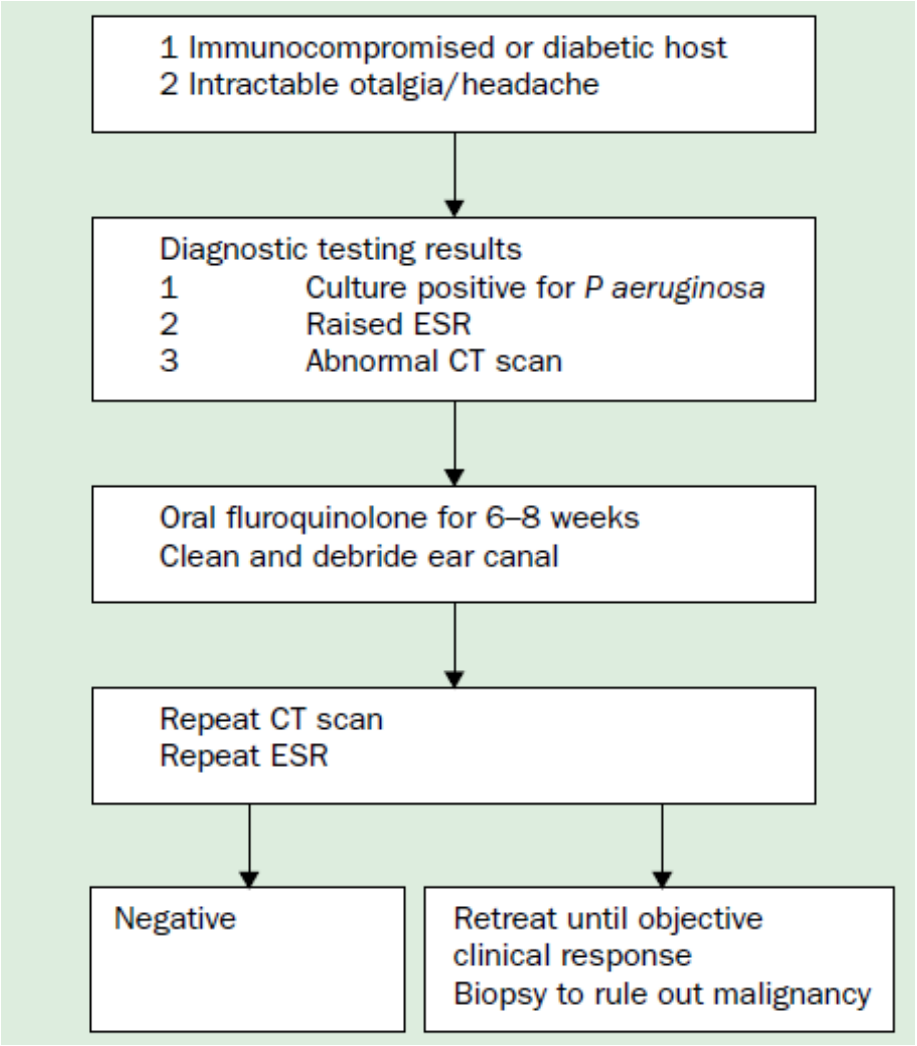
Diagnostic Challenges



Treatment

- Lack of RCTs to guide treatment
- 50% mortality pre 1960s. 20% after semi-synthetic penicillins (Chandler 1968)
- Ciprofloxacin revolutionised treatment (Wiseman and Balfour 1994)
- Treatment length varies – 6-8 weeks minimum
- Ciprofloxacin removes need for radical surgery
- Hyperbaric oxygen – no evidence to show efficacy (Davis, Gates et al. 1992)

Management Algorithm



Suspicion

Diagnosis

Treat

Monitor

Follow-up

Lifted from Rubin Grandis J, Branstetter BFt, Yu VL. The changing face of malignant (necrotising) external otitis: clinical, radiological, and anatomic correlations. The Lancet Infectious diseases. 2004;4(1):34-9.

A multi-centre retrospective case review into the management of malignant otitis externa in adult patients in the United Kingdom

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Aims

We propose collaboration with major OPAT and ENT centres within the United Kingdom to collect data on the management of MOE in cohorts of adult patients with an aim to:

1) Create an anonymised multicentre database of patients treated for MOE between 2006 and 2016. Information including demographics, risk factors, presentation and clinical outcomes would derive from existing data collected by the individual institutions.

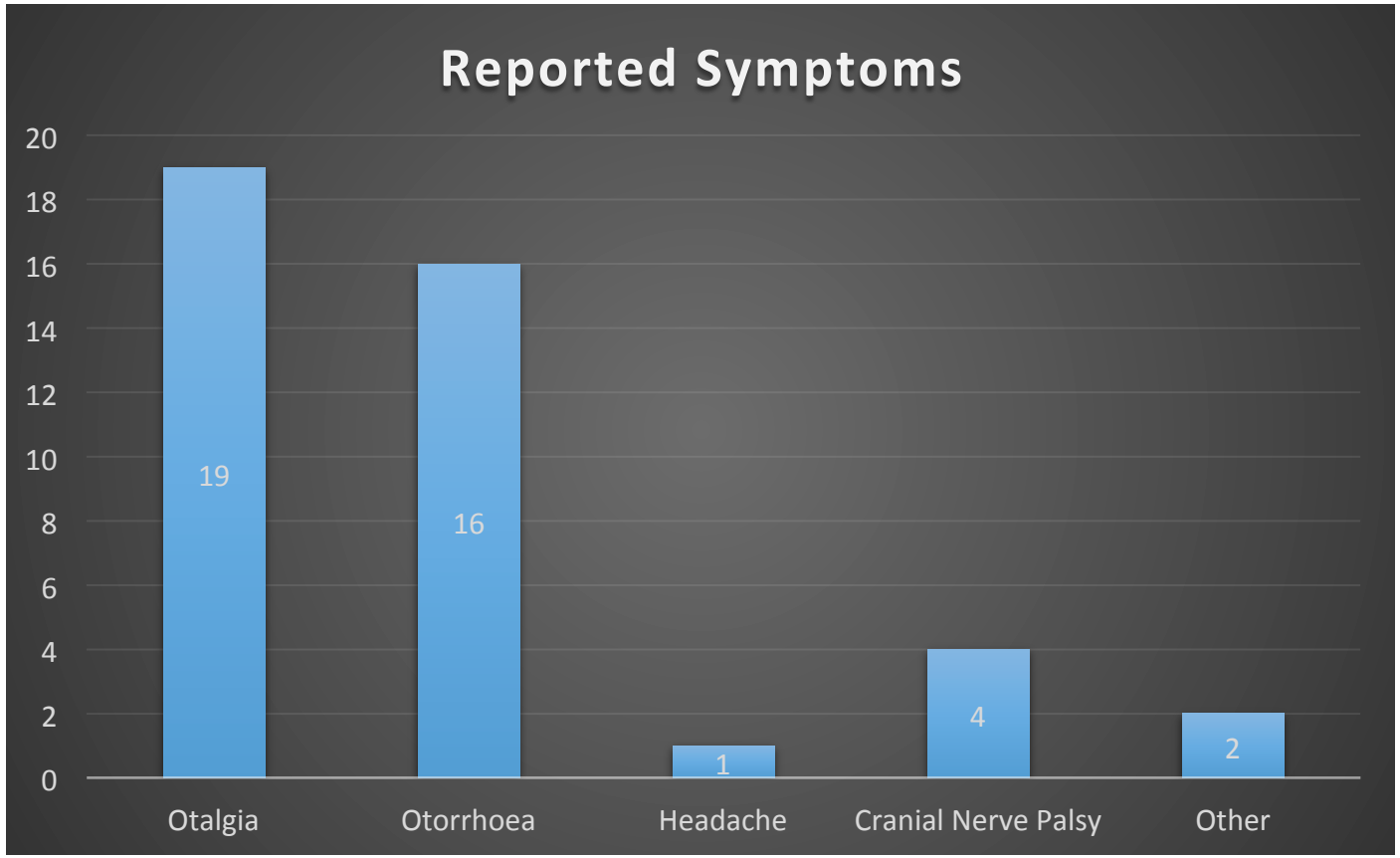
2) Examine the relationship between patient outcome with patient parameters and treatment regimen. This would be used define prospective research questions on optimising treatment of MOE

3) Use the findings to formulate a consensus statement on the management of patients with MOE. This information will be disseminated nationally through the UK OPAT initiative and its results submitted to a peer-reviewed journal.

NUH OPAT experience

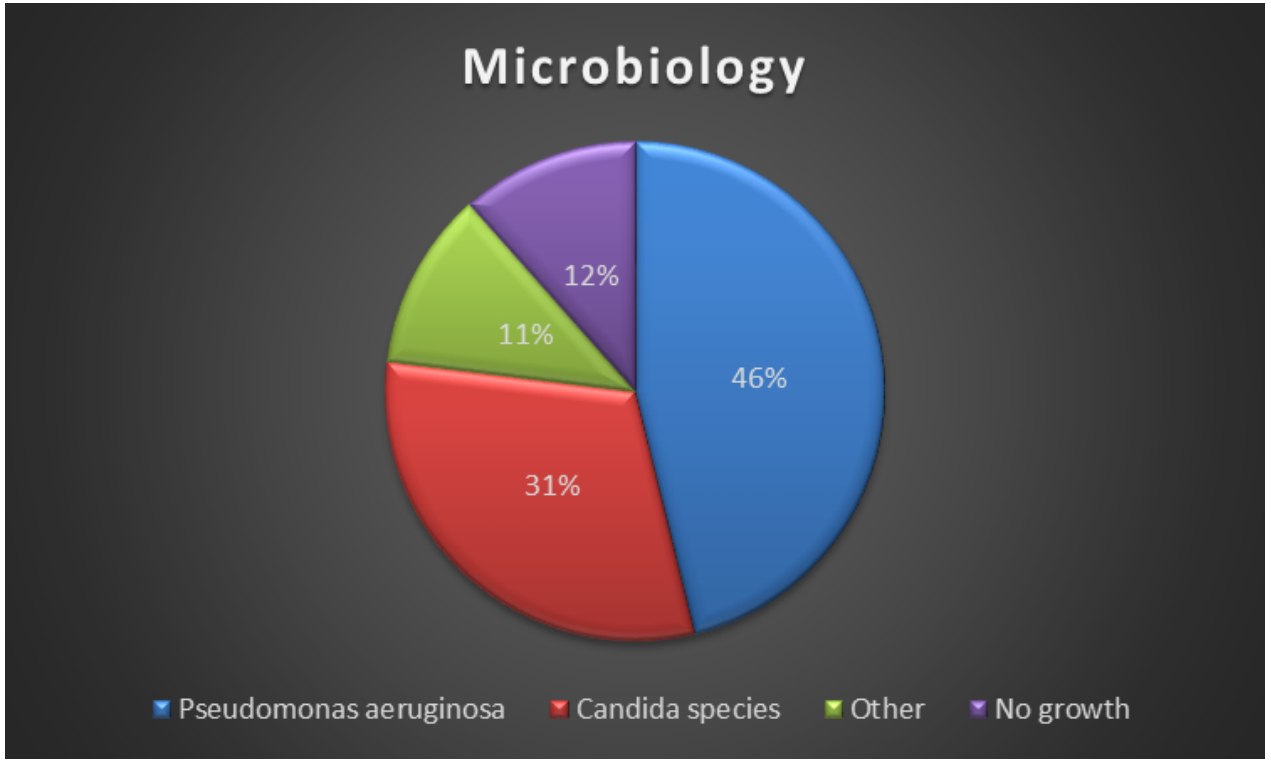
- 23 patients - 16 male, 7 female
- 76 - mean age (range 47-95)
- 8 weeks - mean time to diagnosis (range 2-24)
- Co-morbidities:
  - 78% Diabetes
  - 9% other - CKD, renal transplant
  - 13% none
- August 2013 – October 2016

NUH OPAT experience

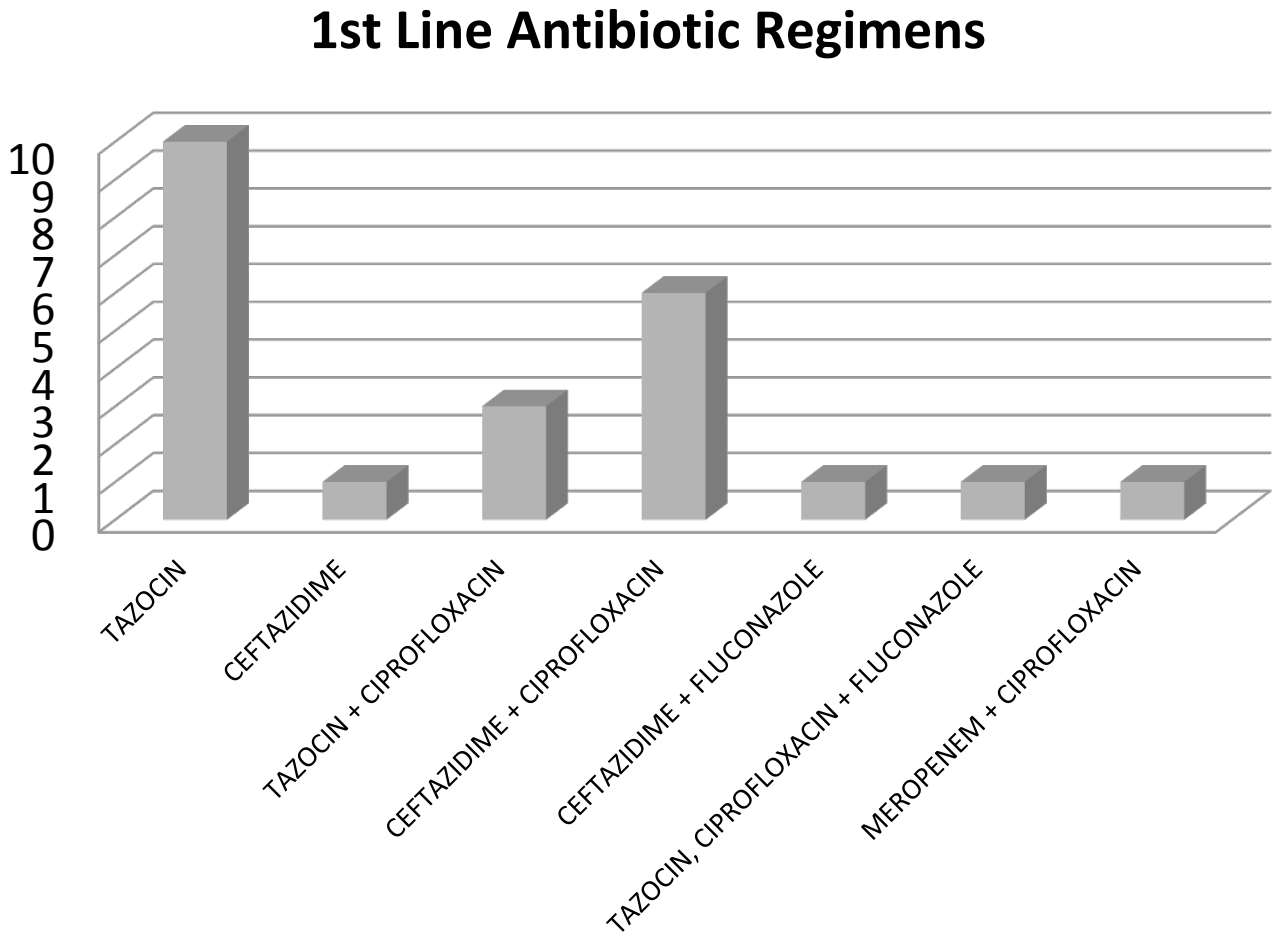


NUH OPAT experience

- 91% sampled – most superficial swabs
- 70% tissue sent for histology
- 1/23 fungal biomarkers
- CRP mean 52 (range <5-156)
- 52% normal CRP at diagnosis
- 91% CT at diagnosis
- 26% no follow-up imaging
- 30% serial imaging

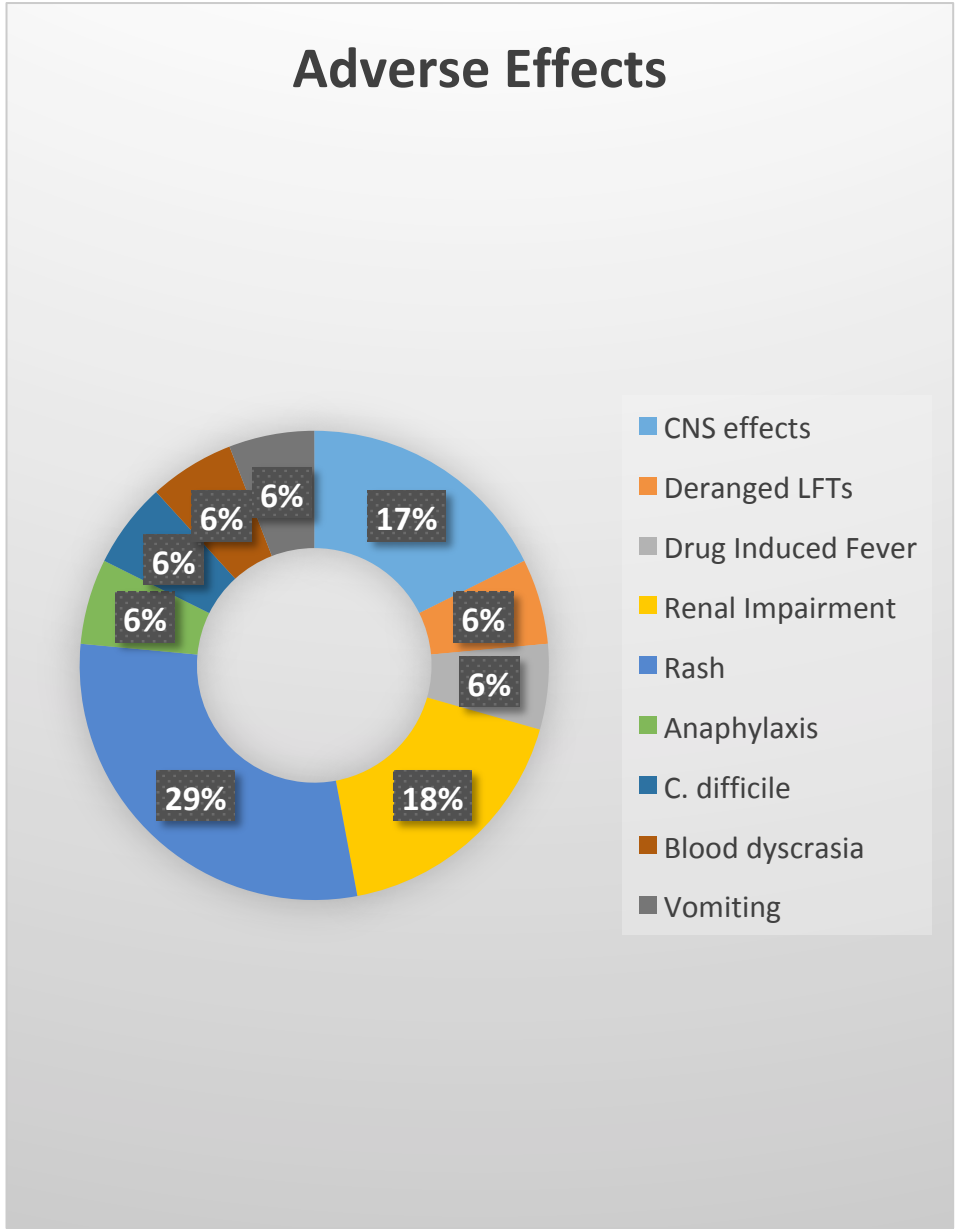


Mean treatment length 9.4 weeks (range 4.4 – 31.6 weeks)



NUH OPAT experience

- 61% suffered adverse effects



NUH OPAT experience

- 1 year mortality 17%
  - 1 died as a result of MOE
  - Remaining 3 died from co-morbidities
- OPAT Outcomes
  - 65% cured
  - 26% improved
  - 9% failed
- Radiological improvement
  - Yes 41%
  - No 47%
  - Unclear 12%

NUH OPAT MOE Summary

- Complex infection in a complex group
- Challenges in diagnosis and management

    - 17% mortality
    - No standardised imaging protocol
    - No standardised antimicrobial protocol
    - High rate of adverse events to antibiotics