A Description of the Cohort of Patients Presented at the Novel Maxillofacial Surgery/Dental/Infectious Diseases Multidisciplinary Meeting at an Irish Tertiary Centre

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Background

Infections involving the maxillofacial bones and adjacent structures can be severe, and
their diagnosis and management challenging. With a diverse spectrum of micro-organisms, the oral cavity and adjacent structures has a high concentration of potentially virulent pathogens. Furthermore, this anatomical area is prone to micro-injuries and abrasions through routine daily activities, such as chewing and dental care,, as well as myriad non-infectious pathologies including malignancy, trauma, dental disease, and iatrogenic complications of treatments such as anti-resorptive medications and radiotherapy. This can result in a wide range of complex and severe infection.[1]
The importance of a multidisciplinary approach to complex odontogenic and non-odontogenic neck infections has been documented in other centres.[2]

St James's hospital has a busy Maxillofacial Service providing 24-hour care to a wide catchment area with an estimated population of 3 million people.
Patients with infectious complications are often referred from Maxillofacial services to the Infectious Diseases services for assessment and treatment, including outpatient parenteral antibiotic therapy (OPAT). Furthermore, there is frequent communication between practitioners in the Dublin Dental University Hospital (DDUH) and Infectious Diseases (ID) services in St James's Hospital regarding patients with complex infection attending the DDUH.

In the absence of a formal pathway for in-person discussion of patients under the shared care of dental, maxillofacial, and infection services, we established the Maxillofacial, Infectious Diseases and Dental Multidisciplinary Meeting (MFID- MDM). it was agreed between services that establishing a pilot multidisciplinary meeting for discussion of complex cases would be of value in ensuring consensus regarding optimal management of these cases.

Aims

The aim of the MFIDD MDM is to provide a platform to discuss complex cases of maxillofacial and dental infections, in order to seek consensus among specialties regarding optimal treatment approaches to enhance patient care. Additionally, to provide learning opportunities for infectious diseases regarding the management of these infections, to which they have limited exposure.

Methods

Initial discussions were held between relevant stakeholders from infectious diseases and maxillofacial services, and an invitation was extended to colleagues in DDUH for their involvement and expertise.
It was decided to hold these hybrid meetings quarterly, in person and via video-conference. Members of the maxillofacial and infectious diseases services in SJH, and practitioners from the DDUH, were invited to attend. The first meeting was scheduled for November 2024.

Results – *demographics and predisposing conditions*

To date, 13 patients have been discussed. Demographics and surgical history are outlined in Table 1.

Results (Table 1)	Total Number (N=13)
Sex, female; n (%)	8 (62)
Age, years; median (range)	58 (43 – 88)
Prior maxillofacial surgery; n (%)	10 (77)
Prosthetic material in situ (in maxillofacial region); n (%)	4 (31)

All patients had at least one predisposing condition for maxillofacial disease and infection. Some had more than one. These included:

- Dental extraction (5)
- Osteoporosis (2)
- Osteopetrosis (2)
- Bisphosphonate/denosumab therapy (2)
- Osteonecrosis of the jaw (2)
- Radiotherapy to area (4; of whom 2 had a diagnosis of osteoradionecrosis of the jaw)
- Fibro-osseous lesion of mandible (1)
- Primary malignancy of oral/maxillofacial region (4)
- Metastatic malignancy to mandible (1)
- Trauma with metalwork insertion (1)
- Secondary hyperparathyroidism (1)

Results –*infection characteristics, antibiotic usage and outcomes*

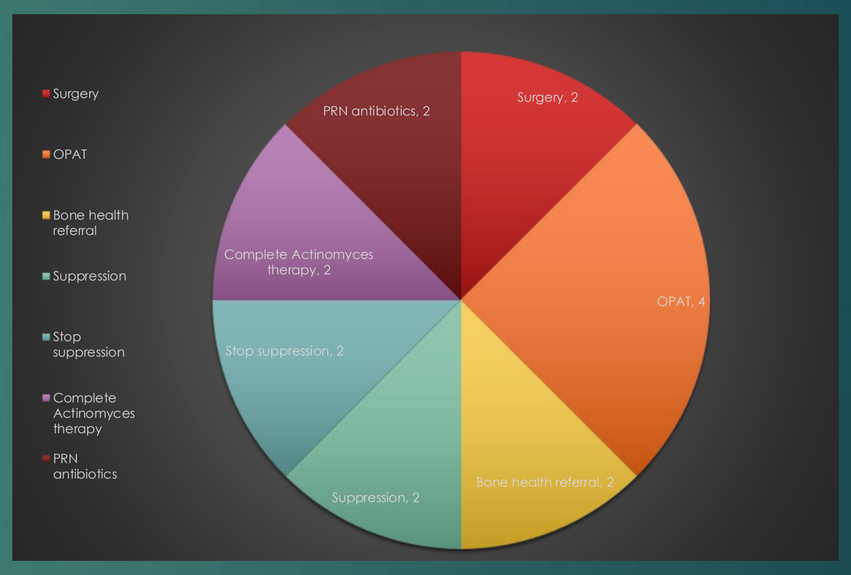
Infectious presentations varied, as outlined below:
- Orocutaneous fistula/sinus tract (8)
- Osteomyelitis of mandible / maxilla (11)
- Infected mucous retention cyst (1)
- Metalwork dehiscence (1)

Prior surgical interventions included:
- Dental removal/clearance (5)
- Metalwork following trauma (1)
- Incision and drainage (1)
- Mandible resection (4; 3 of whom had fibular graft)

Microbiological sampling:
Ten patients had a pathogen identified on bone, tissue, or pus culture, of whom 7 were polymicrobial. Pathogens included; Streptococci (7), Staphylococci (2), Enterococci (1), anaerobic organisms (6), Actinomyces (2), gram-negative bacilli (2).

Antimicrobial therapies:
Ten patients had undergone Outpatient Antimicrobial Therapy (OPAT) at least once. Four patients were on antimicrobial therapy intended to suppress infection or prevent recurrence, while three were on long-term therapeutic oral antibiotics (including two patients with Actinomyces infection and one patient awaiting definitive surgical intervention with bone grafting).

Outcomes of MDM discussion:



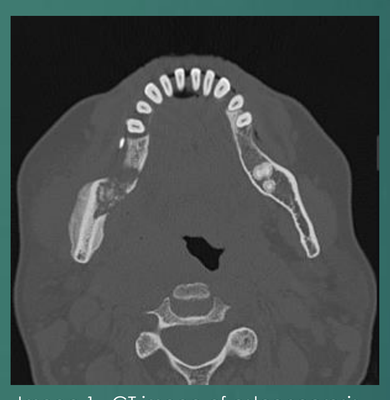


Image 1. CT image of osteonecrosis of the jaw (Radiopedia.org)


Image 2. X-ray post-open reduction and internal fixation of parasymphysis fracture (oralhealthgroup.com)

Discussion

The establishment of the MFIDD-MDM has provided a pathway for discussion of complex cases of maxillofacial and dental infection. With an ageing population, increased use of anti-resorptive therapies, and improving treatments for maxillofacial malignancies, the number of patients presenting with complex maxillofacial infections is likely to increase.

Patients who had undergone complex dental procedures, or those who had been treated for maxillofacial malignancy (with surgery and/or radiotherapy) have accounted for the majority of cases discussed to date. Just two patients have had a history of anti-resorptive therapy.

In light of the high rates of engagement among the relevant departments, with attendance rates of between 10-15 people per meeting to date (including those attending virtually), we anticipate that this meeting will expand and frequency of meetings may need to increase to meet demand.

Further development plans at present including developing a Standard Operating Procedure (SOP), regular audit and service evaluation, and potentially establishing a patient registry to allow for collaborative research opportunities.

References

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