ATKINSON ORAL SURGERY

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OSTEO-RADIONECROSIS OF THE JAWS

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Patients who have had radiation treatment for head and neck cancer are at an increased risk of developing Osteo-radionecrosis of the Jaws (ORN). This is a condition whereby there is exposed bone that can be secondarily infected and lead to jaw fracture or fistula formation. It is a chronic non-healing wound within the mouth.

When does it occur?

ORN can occur spontaneously however more commonly it occurs following the extraction of a tooth in an irradiated field. The risk in the mandible (lower jaw bone) is 2.6-15%.

Who is at risk?

All patients who have received radiation to the jaws are at risk, however those who have received higher doses of radiation are at a higher risk. Your surgeon will liaise with your General Medical Practitioner or Oncologist for the field and dose received.

What causes ORN?

The exact cause is not completely understood but it is essentially due to impaired wound healing. There are two theories currently – three H's or fibro-atrophy theory. ORN itself is not an infection. The site can however become secondarily infected.

How to prevent ORN?

As mentioned previously, ORN can occur spontaneously in an irradiated site. It is more common following dental extractions. Therefore, before radiation treatment, your surgeon may implement a surgical plan to remove teeth within the field with poor long-term prognosis due to deep decay or periodontal disease.

Following radiation treatment, regular dental check-ups and maintenance are recommended to decrease the risk of you requiring surgery in your mouth such as dental extractions.

What if a tooth needs to be extracted in the future?

Despite best efforts, teeth in the irradiated field may require removal in the future. If this is done, some prevention methods may be utilised such as the adjunctive use of hyperbaric oxygen therapy (HBOT), antibiotics or anti-microbial mouth rinses, use of medications (pentoxifylline-tocopherol-clodronate) and different surgical techniques.

HBOT is done in a special chamber that provides 100% oxygen at 2-3 atmospheric pressure of 90-120 minute sessions over 5 days. HBOT has its own risks including barotrauma (ear or lung injury) or vision disturbances.

It is important that you are closely monitored in your healing phase, and multiple review appointments may be necessary. It should be noted that despite best intentions and interventions, ORN may still occur.

If ORN does develop

If ORN does develop, it is best managed by a Specialist such as an Oral Surgeon. Treatment may be conservative such as avoidance of irritants, local debridement with antiseptic solutions and systemic antibiotics for episodes of acute infection, or more involved management such as superficial bone debridement or removal of fixation screws/plates. HBOT or ultrasound may be utilised. Newer drugs being trialled include pentoxifylline-tocopherol-clodronate with promising results. However, it will be dependent on the specifics of your case. The key is that you will be under regular review.

A note about Dental Implants

Dental implants (titanium) are becoming more common than traditional oral prostheses such as dentures. It is important that you understand that implant placement in irradiated bone holds the same risks of ORN as other surgical procedures.

Dental implants in irradiated bone are not necessarily contraindicated however they have approximately a 2-3 times higher failure rate. This is due to the impaired wound healing potential of the bone. Placement may result in development of ORN, chronic non-healing site, infection, and subsequent implant failure.

Hopefully the information in this leaflet will answer most of your questions about osteo-radionecrosis of the jaws. If you have any further questions, discuss this with your dental practitioner or Oral Surgeon.

Dr Mark Daniel Atkinson **06/03/2019**

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