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## Abstract

**Introduction:** In 2025 in the United States, it is estimated that about 9,550 children under the age of 15 will be diagnosed with childhood cancer.<sup>7</sup> Children with cancer are at an increased risk for dental caries, infection, and oral pathology, such as mucositis and cheilitis. Establishing a proper oral hygiene routine and identifying potential sources of dental infection prior to cancer treatment should always be considered for this patient population. Providing multidisciplinary care, assessing laboratory values, identifying treatment needs, and determining appropriate timing to complete treatment for each individual patient is important. Laboratory values such as platelet count and absolute neutrophil count should be assessed to determine if prophylactic antibiotics are indicated and what supportive measures may be needed to minimize bleeding.

**Case report:** This case report focuses on a 9-year-old female diagnosed with Plasmablastic Lymphoma (PBL), an aggressive subtype of diffuse large B-cell lymphoma, and highlights the importance of a dental examination and treatment of dental needs in patients with childhood cancer. As part of the preparation for allogeneic hematopoietic cell transplantation, the Children's Healthcare of Atlanta Pediatric Dentistry department was consulted to examine the patient during an admission for chemotherapy. The patient was later seen in the pediatric dentistry outpatient clinic for completion of dental treatment. The dental treatment that was completed, rationale behind treatment, pertinent lab values, and other considerations will be discussed in this report.

## Dental Considerations

All children undergoing immunosuppressive therapies or head and neck radiation should have a thorough dental examination completed prior to receiving therapy for three reasons:

- to identify any potential sources of infection while immunosuppressed
- to focus on prevention to lessen caries risk during treatment
- to open lines of communication with the medical team<sup>3,4</sup>

During immunosuppressive therapies, the body has more difficulty both showing and fighting infection.<sup>5</sup> Caries risk increases drastically for these patients due to changes in their diet and oral hygiene routine due to mucositis, dysphagia, dysgeusia, vomiting, and/or xerostomia.<sup>5</sup>

Dental care prior to immunosuppressive treatment should be tailored to each patient with close attention paid to dental treatment needs and lab values.<sup>1</sup>

## Medical Considerations

Absolute neutrophil count (ANC) and platelet count are significant lab values for this patient population that should be assessed prior to treatment and discussed with the patient's medical team.<sup>2</sup> These values will help determine if antibiotic prophylaxis prior to dental treatment is appropriate and will determine when the patient will be able to safely receive treatment from a hematology perspective.<sup>2</sup>

The following guidelines should be used in decision making:

### Absolute neutrophil count (ANC):

- > 2,000/mm<sup>3</sup>: no need for antibiotic prophylaxis
- 1,000/mm<sup>3</sup> to 2,000/mm<sup>3</sup>: use clinical judgment and consult with medical team based on the patient's health status and procedure type
- < 1,000/mm<sup>3</sup>: defer elective dental care\*

### Platelet count:

- < 60,000/mm<sup>3</sup>: defer elective dental care and avoid invasive procedures when possible\*<sup>2</sup>

\*in dental emergencies, consult with medical team to discuss management

## Case Report



**Chief concern:** "There is a loose cap in the top right that has been bothering me for about two weeks, especially when eating."

**Medical history:** 9-year-old female diagnosed with plasmablastic lymphoma (EBV+) currently being treated with chemotherapy and eventually a bone marrow transplant

**Dental history:** Routinely by private practice pediatric dentist, last visit was less than one year ago, no dental needs reported at this visit

**Medications:** Mylanta-benadryl-nystatin-lidocaine suspension, Budesonide-formoterol oral inhaler, Albuterol inhaler, Omeprazole, Ondansetron, Amlodipine, Fluoxetine, Cetirizine, Cyproheptadine, Posaconazole, Oxycodone, Lactulose oral solution

**Social history:** Lives at home with family, presents to the hospital regularly for cancer treatment

**Oral hygiene:** Good

**Diet:** Varied diet, three meals a day, uses a thickening agent to reduce aspiration risk

**Caries risk assessment:** Moderate

**Extraoral exam:** Cheilitis

**Intraoral exam:**

- Intact restorations on teeth #3, #A, #J, #14, #19, #K, and #30
- Moderate crowding
- Grade 1 mucositis present generalized
- Over-retained teeth #A and #K
- Deep lingual pits on teeth #7 and #10

## Dental Treatment

A pediatric dentistry hospital consult was completed, including obtaining and reviewing an orthopantomogram. Intraoral radiographs were obtained and reviewed in dental clinic.

**Pre-operative lab values, obtained the day prior to the dental treatment appointment:**

- Platelets - 554 THOU/uL
- Absolute neutrophil count (manual): 1.21 THOU/uL

After consultation with the medical team and review of AAPD guidelines, no prophylactic antibiotic or bleeding plan was indicated for this treatment appointment.

**Treatment completed:**

- Extractions: #A and #K to remove potential sources of infection and pain
- Sealants: #7 (L) and #10 (L) to prevent dental caries
- Nitrous Oxide

**Oral Hygiene, Nutritional Counseling, and Anticipatory Guidance:** Recommended use of Lanolin lip products, use of Biotene mouth rinse, and brushing two times daily with Prevident toothpaste on a soft toothbrush. Patient does not floss during periods of immunosuppression. Patient should be followed closely and seen for routine care by their dental home.

## Discussion

Caries and infection risk increases dramatically in immunocompromised patients undergoing cancer treatments.<sup>1</sup> Alongside the patient's medical team, it is vital to consider the patient's health status, lab values and dental treatment needs.<sup>1</sup> Patients should be evaluated by a dentist at least every six months while receiving immunosuppressive therapies with a focus on oral hygiene instruction and nutritional counseling for prevention. Pediatric dentists play an important role in the patient's medical team to ensure the child's oral health and improve overall well-being.

## References

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