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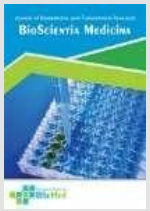

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Awake Fiberoptic Intubation in a Patient with T4N2M1 Buccal Tumor and Pulmonary Metastasis: A Case Report and Anesthetic Challenges

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A B S T R A C T

Background: Advanced buccal cancer with pulmonary metastasis presents significant challenges for airway management due to potential anatomical distortions and respiratory compromise. Awake fiberoptic intubation (AFOI) is often the preferred technique in these cases. This report describes the successful anesthetic management of a patient with a T4N2M1 buccal tumor and lung metastasis using AFOI. **Case presentation:** A 64-year-old male with a T4N2M1 buccal tumor and pulmonary metastasis presented for an open biopsy and biopsy of the oral cavity. He had limited mouth opening (Mallampati 2), anemia, and hypoalbuminemia. AFOI was performed using dexmedetomidine and topical lidocaine. General anesthesia was induced with propofol and atracurium and maintained with sevoflurane. Postoperative pain was managed with paracetamol and ketorolac. The patient's recovery was uneventful. **Conclusion:** This case highlights the importance of AFOI in securing the airway for patients with advanced buccal cancer and pulmonary metastasis. Meticulous preoperative planning, including optimization of comorbidities and vigilant perioperative monitoring, is essential for successful outcomes in these complex cases.

1. Introduction

The management of the airway in patients with advanced buccal cancer presents a formidable challenge in anesthesiology. This complex clinical scenario is often characterized by anatomical distortions resulting from tumor invasion and potential metastasis, which can significantly impede airway patency and compromise respiratory function. The intricate interplay of tumor growth compromised respiratory status, and the need for surgical intervention necessitates a meticulous and individualized approach to anesthetic management. Buccal cancer, a malignancy originating from the lining of the cheek, poses unique challenges due to its propensity to infiltrate surrounding structures and disrupt the normal anatomy of the oral cavity. As the tumor progresses, it can lead to trismus, limited mouth opening, and distortion of the upper airway, making conventional methods of airway management, such as direct laryngoscopy and endotracheal intubation, exceedingly difficult or even impossible. In advanced stages, buccal cancer can metastasize to distant organs, most commonly the lungs. The presence of lung metastasis further complicates the anesthetic management, as it can impair respiratory function

and increase the risk of perioperative pulmonary complications.[1,2]

The anesthetic management of patients with advanced buccal cancer requires a comprehensive preoperative assessment to evaluate the extent of the disease, assess the patient's overall health status, and identify potential risk factors. Imaging studies, such as computed tomography (CT) and magnetic resonance imaging (MRI), play a crucial role in delineating the tumor's size, location, and its relationship to adjacent structures. Pulmonary function tests and arterial blood gas analysis may be necessary to assess the degree of respiratory compromise in patients with lung metastasis. In patients with anticipated difficult airways, awake fiberoptic intubation (AFOI) has emerged as the gold standard for airway management. AFOI allows for tracheal intubation while the patient is awake and spontaneously breathing, thus mitigating the risk of losing airway control during induction of general anesthesia. This technique involves the use of a flexible fiberoptic bronchoscope, which is advanced through the nasal or oral cavity under topical anesthesia and sedation. The bronchoscope provides a direct visualization of the glottis, enabling the anesthesiologist to navigate the endotracheal tube through the vocal cords and into the trachea.

The choice of sedative agents for AFOI is critical, as it must provide adequate sedation and anxiolysis without causing respiratory depression. Dexmedetomidine, a highly selective alpha-2 adrenergic agonist, has gained popularity in recent years due to its favorable pharmacological profile. Dexmedetomidine provides sedation, anxiolysis, and analgesia with minimal effects on respiratory drive. It also offers hemodynamic stability, making it an ideal choice for patients with compromised cardiovascular function.[3,4]

Topical anesthesia of the airway is essential for AFOI to minimize discomfort and suppress the cough reflex during the procedure. Lidocaine, a local anesthetic, is commonly used for this purpose. It can be applied to the nasal and oral mucosa, as well as the vocal cords, to provide effective anesthesia. In addition to AFOI, other airway management techniques may be considered in patients with advanced buccal cancer, depending on the specific circumstances of the case. These include video laryngoscopy, which provides an indirect view of the glottis, and supraglottic airway devices, which can be used as a rescue measure in case of failed intubation. In rare cases where conventional techniques are deemed impossible or unsafe, a surgical airway, such as a tracheostomy, may be necessary. The successful anesthetic management of patients with advanced buccal cancer requires a multidisciplinary approach, involving close collaboration between anesthesiologists, surgeons, oncologists, and other healthcare professionals. The complexity of these cases demands a thorough understanding of the disease process, meticulous preoperative planning, and a high level of vigilance throughout the perioperative period.[4,5]

This case report describes the anesthetic management of a 64-year-old male with a T4N2M1 buccal tumor and pulmonary metastasis who underwent an open biopsy and biopsy of the oral cavity. The patient's advanced disease stage, coupled with his comorbidities, presented significant challenges for airway management. AFOI was successfully performed using dexmedetomidine and topical lidocaine, ensuring a secure airway and facilitating the surgical procedure. The patient's postoperative recovery was uneventful, highlighting the importance of careful planning and execution of anesthesia in this complex patient population.

2. Case Presentation

The patient, a 64-year-old male, presented with a primary complaint of pain in his left cheek accompanied by bleeding from the mouth. This bleeding, which had occurred 4 hours prior to admission, had subsided by the time of examination. He also reported a lump in his left cheek that had been present for the past 4 months. Notably, the patient had no prior history of significant comorbidities such

as hypertension, diabetes mellitus, asthma, heart disease, or previous surgeries. Despite the presence of an intraoral mass, the patient's airway was found to be patent. However, the mass significantly limited his mouth opening to a mere 2 fingers, corresponding to a Mallampati classification of Class 2. This restricted mouth opening raised concerns about potential difficulties in intubation and ventilation. The patient's vital signs were within the normal range, with a respiratory rate of 18 breaths per minute, oxygen saturation of 100% on room air, blood pressure of 137/87 mmHg, a regular pulse of 90 beats per minute, and a body temperature of 36.5°C. Pulmonary examination revealed no signs of respiratory distress, such as rhonchi or wheezing, and heart auscultation yielded normal results. Laboratory tests revealed that the patient had anemia, with a hemoglobin level of 10.40 g/dL. Additionally, he exhibited hypoalbuminemia, with an albumin level of 2.58 g/dL. These findings indicated a degree of malnutrition and potential compromise in his overall health status. However, his electrolyte levels and coagulation parameters were within the normal limits. A cervical anteroposterior (AP) and lateral (Lat) imaging examination revealed a lobulated opacity in the right colli region, spanning from the C4 to Th2 vertebrae, which was suspected to be a mass. This finding suggested the presence of a tumor or lymph node involvement in the neck. A chest X-ray examination further corroborated these suspicions, showing a picture suggestive of right lung atelectasis and soft tissue thickening in the right colli region, likely attributable to a mass. Based on the collective clinical, laboratory, and imaging findings, the patient was diagnosed with cancer pain secondary to a suspected malignant buccal tumor. The tumor was staged as T4N2M1, indicating an advanced stage with regional lymph node involvement and distant metastasis to the lung. The patient's overall condition was assessed using the American Society of Anesthesiologists (ASA) Physical Status Classification System, and he was assigned an ASA score of 3. This classification signifies a patient with severe systemic disease that limits activity but is not incapacitating. In this case, the patient's advanced malignancy, anemia, and hypoalbuminemia contributed to his ASA 3 classification (Table 1).

Table 1. Anamnesis, clinical findings, laboratory, imaging, and diagnosis.

Category	Findings
Anamnesis	- 64-year-old male - Pain in the left cheek - Bleeding from the mouth - Lump on the left cheek for 4 months - No history of comorbidities (hypertension, diabetes mellitus, asthma, heart disease, previous surgery)
Clinical Findings	- Patent airway - Intraoral mass limiting mouth opening to 2 fingers (Mallampati 2) (Figure 1) - Possible difficult intubation and ventilation - Vital signs: RR 18x/min, SpO_2 100% (RA), BP 137/87 mmHg, pulse 90x/min, temperature 36.5°C - No rhonchi or wheezing - Normal heart auscultation
Laboratory	- Hb 10.40 g/dL (anemia) - Albumin 2.58 g/dL (hypoalbuminemia) - Electrolytes and coagulation within normal limits
Imaging	- Cervical AP/Lat: Lobulated opacity in the right colli region (C4-Th2) suspected of a mass (Figure 2)- Chest X-Ray: Suspected right lung atelectasis and right colli region soft tissue thickening suspected of being due to a mass (Figure 3)
Diagnosis	- Cancer pain - Suspected malignant buccal tumor with stage T4N2M1 (lung metastasis) - ASA 3 - Possible difficult intubation and difficult ventilation - Anemia - Hypoalbuminemia

The preoperative preparation for this patient with a suspected malignant buccal tumor and potential airway and respiratory compromise was crucial. The patient was instructed to fast for 6 hours prior to the procedure to minimize the risk of aspiration during anesthesia induction. Intravenous (IV) Line Insertion was secured to provide a route for fluid administration, medication delivery, and emergency access if needed. The patient's fluid status was optimized with 0.9% NaCl to ensure adequate

hydration and hemodynamic stability during the perioperative period. One unit of packed red blood cells was prepared in anticipation of potential blood loss during the surgical procedure, especially given the patient's anemia. A comprehensive monitoring setup was established to closely track the patient's vital signs and physiological parameters throughout the procedure. This included: Baseline vital signs (heart rate, blood pressure, oxygen saturation) to establish a baseline for comparison during the procedure; Electrocardiogram (ECG) to monitor heart rhythm and detect any abnormalities; Capnography (end-tidal CO2 monitoring) to assess ventilation adequacy and detect any signs of airway obstruction or respiratory compromise; Peripheral nerve stimulator to monitor the depth of muscle relaxation during anesthesia, ensuring adequate surgical conditions while minimizing the risk of residual paralysis; Temperature monitoring to detect any changes in body temperature, which can be indicative of infection or other complications; Urine output monitoring to assess renal function and fluid balance (Table 2).

The chosen anesthesia technique was general anesthesia (GA) with awake intubation. This approach was deemed the safest for this patient with an anticipated difficult airway due to the intraoral mass. Awake intubation allows for securing the airway while the patient is still spontaneously breathing, minimizing the risk of losing airway control during induction of GA. Dexmedetomidine, a highly selective alpha-2 adrenergic agonist, was used for sedation during the awake intubation. Dexmedetomidine provides sedation, anxiolysis, and analgesia with minimal respiratory depression, making it an ideal choice for patients with potential airway compromise. Lidocaine, a local anesthetic, was applied topically to the airway to suppress the cough reflex and minimize discomfort during intubation. Lidocaine was also administered intratracheally to further anesthetize the airway and facilitate smooth intubation. Once the airway was secured, GA was induced with propofol, an intravenous anesthetic that provides rapid and smooth induction, and atracurium, a muscle relaxant that facilitates endotracheal intubation. Anesthesia was maintained with sevoflurane, an inhaled anesthetic that provides stable anesthesia with minimal side effects. A combination of intravenous paracetamol and ketorolac was used for pre- and postoperative pain management. These medications provide effective analgesia with minimal side effects, reducing the need for opioids and their potential respiratory depressant effects. Awake fiberoptic intubation was the primary technique used to secure the patient's airway. This technique involves the use of a flexible fiberoptic bronchoscope to visualize the glottis and guide the endotracheal tube into the trachea while the patient is awake and spontaneously breathing. This approach is particularly useful in patients with anticipated difficult airways, as it allows for intubation without the need for direct laryngoscopy, which may be challenging or impossible in this patient due to the limited mouth opening (Table 2).

After the surgical procedure, the patient was transferred to the Intensive Care Unit (ICU) for close monitoring and continued care. The ICU provides a higher level of care and monitoring capabilities compared to the general ward, which is essential for patients who have undergone complex procedures or have significant comorbidities. In the ICU, the patient's vital signs, oxygen saturation, respiratory status, pain levels, and any signs of nausea and vomiting were closely monitored. Postoperative analgesia was continued with intravenous paracetamol and ketorolac to ensure adequate pain control and facilitate recovery. The use of a multidisciplinary approach, involving anesthesiologists, surgeons, nurses, and intensivists, was crucial in providing comprehensive care for this patient with a complex medical condition. The team worked together to ensure the patient's safety and optimize his outcome throughout the perioperative period (Table 2).

Table 2. Anesthetic management.

Category	Details
Preoperative Preparation	- Fasting for 6 hours - Intravenous (IV) line insertion - Fluid correction with 0.9% NaCl - Blood preparation (1 unit of packed red blood cells) - Monitoring: - Baseline vital signs (heart rate, blood pressure, oxygen saturation) - Electrocardiogram (ECG) - Capnography (end-tidal CO_2 monitoring) - Peripheral nerve stimulator - Temperature - Urine output
Anesthesia Technique	- General anesthesia (GA) - Awake intubation
Medications	- Sedation: Dexmedetomidine - Topical Anesthesia: Lidocaine - Intratracheal Anesthesia: Lidocaine - Induction: - Propofol 100 mg - Atracurium 25 mg - Maintenance: Sevoflurane - Pain Management: - Paracetamol IV - Ketorolac IV
Airway Management	- Awake fiberoptic intubation - Endotracheal tube
Postoperative Care	- Close supervision in the Intensive Care Unit (ICU) - Monitoring: - Vital signs - Oxygen saturation - Respiratory status - Pain - Nausea and vomiting - Postoperative analgesia with Paracetamol IV and Ketorolac IV

Figure 1. Clinical photos of the patient.

Figure 2. Cervical AP/Lat imaging examination. The results of the examination showed lobular opacity in the right colli area (C4-Th2), suspected to be a mass.

Figure 3. Chest X-ray examination. The results of the examination showed a picture of suspected right lung atelectasis and right colli region soft tissue thickening suspected of being due to a mass.

3. Discussion

The patient's primary complaint of pain in the left cheek, accompanied by bleeding from the mouth, strongly suggested a sinister pathology. In the context of a suspected buccal tumor, these symptoms are particularly worrisome, as they often indicate advanced disease with potential invasion of surrounding tissues and blood vessels. The pain associated with buccal cancer can be severe and debilitating, often described as a constant, dull ache with occasional sharp, shooting pains. The pain may worsen with chewing, swallowing, or talking, significantly impacting the patient's quality of life. In this case, the presence of pain for the past four months suggests a progressive and potentially advanced disease process. Bleeding from the mouth is another ominous sign in patients with suspected buccal cancer. It can occur due to tumor ulceration, invasion of blood vessels, or secondary infection. The bleeding may be intermittent or continuous, and it can range from mild to severe. In this patient, the bleeding had occurred four hours prior to admission and had subsided by the time of examination. However, the presence of bleeding, even if it has stopped, warrants careful investigation and monitoring. The patient's history of a lump in the left cheek for the past four months further strengthens the suspicion of a malignant process. This lump likely represents the primary buccal tumor, which has been progressively growing and causing the associated pain and bleeding. The duration of the lump's presence suggests that the tumor may have already reached an advanced stage, potentially with invasion of surrounding tissues and lymph nodes. The absence of any prior comorbidities, such as hypertension, diabetes mellitus, asthma, heart disease, or previous surgeries, helped to narrow the diagnostic focus to the buccal tumor and its potential systemic effects. This lack of comorbidities simplifies the clinical picture and allows for a more targeted evaluation of the patient's condition.[6,7]

The clinical examination confirmed the presence of an intraoral mass significantly limiting mouth opening, as evidenced by a Mallampati score of 2. This finding immediately raised red flags regarding potential difficulties in securing the airway, both for intubation and ventilation. The intraoral mass was directly visualized during the clinical examination, confirming the patient's reported lump. The mass was likely the primary buccal tumor, causing the associated pain, bleeding, and limited mouth opening. The size and location of the mass would have been carefully assessed to determine its potential impact on

airway management. The Mallampati score is a simple and widely used bedside assessment tool to predict the difficulty of endotracheal intubation. It involves visualizing the oropharyngeal structures with the patient's mouth wide open and tongue maximally protruded. A Mallampati score of 2 indicates that only the soft palate, fauces, and uvula are visible. This score suggests a potentially difficult airway, as the limited view of the oropharynx may impede visualization of the glottis during intubation. The combination of the intraoral mass and the Mallampati score of 2 raised significant concerns about potential difficulties in securing the airway. The mass could obstruct the passage of the endotracheal tube, while the limited mouth opening could make it challenging to visualize the glottis. These concerns underscored the need for careful airway assessment and planning to ensure the patient's safety during any planned procedures requiring anesthesia. The patient's clinical presentation, with its constellation of concerning findings, painted a picture of a potentially advanced and life-threatening condition. The pain, bleeding, and presence of a progressively growing lump strongly suggested a malignant process in the buccal region. The absence of comorbidities helped to focus the diagnostic considerations on the buccal tumor and its potential systemic effects. The clinical examination confirmed the presence of an intraoral mass significantly limiting mouth opening, raising immediate concerns about potential difficulties in securing the airway. This complex clinical scenario demanded a comprehensive and multidisciplinary approach to patient care. The anesthetic management of this patient would require careful planning, advanced airway skills, and close collaboration among healthcare professionals to ensure a safe and successful outcome.[7,8]

The laboratory investigations in this case revealed two significant abnormalities: anemia, with a hemoglobin (Hb) level of 10.40 g/dL, and hypoalbuminemia, with an albumin level of 2.58 g/dL. These findings, while seemingly straightforward, offer profound insights into the patient's overall health status and provide critical information for perioperative management. Anemia, a condition characterized by a deficiency in red blood cells or hemoglobin, can have far-reaching implications for surgical patients. In this particular case, the patient's anemia is likely multifactorial, stemming from a combination of factors related to the underlying malignancy and potential nutritional deficiencies. Cancer cells can infiltrate the bone marrow, the primary site of blood cell production, disrupting the normal hematopoietic process and leading to anemia. Malignancies often trigger a chronic inflammatory state, which can suppress red blood cell production and shorten their lifespan. Tumors, especially those in the head and neck region, can cause bleeding, either through direct erosion of blood vessels or by interfering with normal clotting mechanisms. Chronic blood loss can contribute to iron deficiency anemia. Cancer treatments, such as chemotherapy and radiation therapy, can also suppress bone marrow function and contribute to anemia.[9,10]

The patient's hypoalbuminemia suggests a degree of malnutrition, which can further exacerbate anemia. Malnutrition can lead to deficiencies in essential nutrients required for red blood cell production, such as iron, vitamin B12, and folate. The primary function of red blood cells is to transport oxygen from the lungs to the tissues. Anemia reduces the oxygen-carrying capacity of the blood, potentially leading to tissue hypoxia and organ dysfunction. To compensate for the reduced oxygen-carrying capacity, the heart has to work harder, pumping blood at a faster rate. This can increase the risk of perioperative cardiac events, such as tachycardia, angina, or even heart failure, especially in patients with pre-existing heart conditions. Oxygen is essential for wound healing. Anemia can impair the delivery of oxygen to the surgical site, potentially delaying wound healing and increasing the risk of infection. Patients with anemia are more likely to require blood transfusions during or after surgery, especially if significant blood loss occurs. Blood transfusions carry their own set of risks, including allergic reactions, infections, and

transfusion-related lung injury. Hypoalbuminemia, or low levels of albumin in the blood, is a non-specific indicator of underlying systemic disturbances. Albumin, the most abundant protein in the blood, plays a crucial role in maintaining fluid balance, transporting various substances, and supporting immune function. The presence of the buccal tumor may have interfered with the patient's ability to eat and absorb nutrients properly, leading to protein-calorie malnutrition and hypoalbuminemia. Malignancies often increase the body's metabolic rate, leading to increased breakdown of proteins, including albumin. The liver is the primary site of albumin synthesis. Liver dysfunction, which can occur in advanced malignancies, can impair albumin production. Albumin can be lost through the kidneys in certain conditions, such as nephrotic syndrome. Although this is less likely in this patient, it cannot be entirely ruled out without further investigations. Albumin plays a crucial role in maintaining oncotic pressure, which helps to keep fluid within the blood vessels. Hypoalbuminemia can lead to fluid leaking from the blood vessels into the tissues, causing edema (swelling). This can be particularly problematic in the surgical setting, as it can impair wound healing and increase the risk of infection. Many drugs bind to albumin in the blood. Hypoalbuminemia can alter the distribution and effectiveness of these drugs, potentially leading to unpredictable drug effects. Albumin is essential for wound healing, providing the building blocks for new tissue formation. Hypoalbuminemia can impair wound healing, increasing the risk of infection and complications. Albumin plays a role in immune function, transporting antibodies and other immune factors. Hypoalbuminemia can weaken the immune system, making the patient more susceptible to infections.[11,12]

Imaging studies played a pivotal role in confirming the diagnosis and assessing the extent of the disease in this patient. The cervical anteroposterior (AP) and lateral (Lat) imaging revealed a lobulated opacity in the right colli region, spanning from the C4 to Th2 vertebrae. This finding is highly suggestive of a mass or lymph node involvement in the neck, corroborating the clinical suspicion of an advanced buccal malignancy with regional spread. The chest X-ray further solidified the diagnosis, revealing suspected right lung atelectasis and soft tissue thickening in the right colli region. These findings are consistent with the diagnosis of pulmonary metastasis, indicating that the malignancy has spread beyond the primary site to distant organs. Imaging helps to confirm the diagnosis and assess the extent of the disease, guiding treatment decisions. Precise delineation of the tumor's size and location is crucial for surgical planning, especially in complex cases involving vital structures. Imaging helps to identify any regional lymph node involvement or distant metastasis, which can significantly impact treatment decisions and prognosis. In this case, imaging helped to assess the degree of airway obstruction caused by the tumor and the potential impact of lung metastasis on respiratory function. This information was crucial in guiding the choice of anesthesia technique and perioperative management strategies. The laboratory and imaging findings in this case provided crucial insights into the patient's overall health status and the extent of his disease. The presence of anemia and hypoalbuminemia highlighted the systemic impact of the malignancy and underscored the need for careful perioperative management. The imaging studies confirmed the diagnosis of an advanced buccal malignancy with pulmonary metastasis, guiding treatment decisions and informing the anesthetic plan.[13,14]

The presence of a malignant intraoral mass presents a formidable challenge for airway management, especially when it significantly limits mouth opening. This challenge arises from the tumor's potential to distort the normal anatomy of the oral cavity and upper airway, making it difficult or even impossible to secure the airway using conventional techniques. In this particular case, the patient's Mallampati score of 2, coupled with the presence of the intraoral mass, further heightened the complexity of airway management. The Mallampati score is a

clinical assessment tool used to predict the ease of endotracheal intubation. A score of 2 indicates that only the soft palate, fauces, and uvula are visible when the patient opens their mouth, suggesting a potentially difficult airway. Given these challenges, a careful and strategic approach to airway management was essential. The anesthesiology team opted for awake intubation, a technique that allows for securing the airway while the patient is still awake and spontaneously breathing. This approach minimizes the risk of losing airway control during induction of general anesthesia, which can be catastrophic in patients with compromised airways.[15,16]

Dexmedetomidine, an α2-adrenoceptor agonist, was chosen as the sedative agent for awake intubation due to its unique properties. It provides sedation and anxiolysis without causing significant respiratory depression, making it an ideal choice for patients with potential airway compromise. Dexmedetomidine's mechanism of action involves binding to α2-adrenoceptors in the brainstem, which reduces sympathetic outflow and promotes sedation and analgesia. Unlike other sedative agents, such as opioids or benzodiazepines, dexmedetomidine does not significantly affect respiratory drive. This makes it a safer option for patients with compromised airways, as it reduces the risk of respiratory depression and hypoxemia. Topical and intratracheal lidocaine were also used to minimize airway reactivity and facilitate a smoother intubation process. Lidocaine, a local anesthetic, blocks nerve conduction by inhibiting the influx of sodium ions into nerve cells. This action prevents the transmission of pain signals and reduces the sensation of discomfort. In the context of awake intubation, topical and intratracheal lidocaine help to suppress the cough reflex and reduce discomfort during the insertion of the endotracheal tube. This is particularly important in patients with compromised airways, as excessive coughing or gagging can further compromise airway patency and increase the risk of complications.[16,17]

Awake fiberoptic intubation, a well-established technique for managing patients with anticipated difficult airways, was successfully performed in this case. This technique involves the use of a flexible fiberoptic bronchoscope to visualize the glottis and guide the endotracheal tube into the trachea. The fiberoptic bronchoscope is a thin, flexible tube with a camera and light source at its tip. It is inserted through the nasal or oral cavity and advanced under direct visualization until the glottis is reached. The endotracheal tube is then threaded over the bronchoscope and guided through the vocal cords and into the trachea. The fiberoptic bronchoscope provides a clear view of the glottis, allowing for precise placement of the endotracheal tube. The flexibility of the bronchoscope reduces the risk of trauma to the airway during intubation. The bronchoscope can be maneuvered around tumors or other anatomical obstructions, facilitating intubation in challenging cases. The patient remains awake and spontaneously breathing during the procedure, reducing the risk of hypoxemia and hypercapnia. The successful management of this patient with a malignant intraoral mass and a difficult airway highlights the importance of careful planning, advanced airway skills, and the use of appropriate medications and techniques. Awake fiberoptic intubation, facilitated by dexmedetomidine and topical/intratracheal lidocaine, proved to be a safe and effective approach in securing the airway and ensuring the patient's safety during general anesthesia.[17,18]

The successful management of this patient with a suspected malignant buccal tumor (T4N2M1) and pulmonary metastasis was not a solo performance but rather a harmonious symphony of expertise, orchestrated by a multidisciplinary team of healthcare professionals. This collaborative approach, akin to a well-conducted orchestra, ensured that all aspects of the patient's care, from the initial preoperative assessment to the final postoperative management, were carefully coordinated and optimized. The preoperative phase, much like the tuning of instruments before a concert, was critical in preparing the patient for the surgical intervention. The anesthesiologists, surgeons, radiologists, and other

healthcare professionals involved in the patient's care worked in concert to identify and address potential risk factors and optimize his overall health status. Particular attention was paid to the patient's comorbidities, notably anemia and hypoalbuminemia. Anemia, a condition characterized by a deficiency of red blood cells or hemoglobin, can impair oxygen delivery to tissues and increase the risk of perioperative cardiac events. To mitigate this risk, blood was prepared in advance, ready to be transfused if necessary during or after the surgery. Hypoalbuminemia, a condition characterized by low levels of albumin in the blood, can disrupt the delicate balance of fluids in the body, leading to edema, or fluid retention. Additionally, hypoalbuminemia can impair wound healing and increase the patient's susceptibility to infections. To address this, fluid therapy was initiated to restore the patient's fluid balance, and nutritional support was provided to improve his overall nutritional status. The intraoperative phase, the main performance of the surgical symphony, demanded continuous vigilance and meticulous attention to detail. The anesthesiologists, acting as the conductors of this critical phase, maintained a comprehensive monitoring setup to track the patient's physiological parameters throughout the procedure. Vital signs, including heart rate, blood pressure, and oxygen saturation, were closely monitored to detect any signs of hemodynamic instability or respiratory compromise. The patient's electrocardiography (ECG) was continuously displayed, providing real-time information about his heart rhythm and any potential arrhythmias. End-tidal CO2, a measure of the amount of carbon dioxide in the exhaled breath, was closely monitored to assess the adequacy of ventilation and detect any signs of airway obstruction or hypoventilation. This continuous monitoring allowed for early detection and prompt management of any potential complications, ensuring the patient's safety throughout the surgical procedure. The postoperative phase, the encore of the surgical performance, focused on maintaining the patient's stability and facilitating his recovery. The patient was transferred to the Intensive Care Unit (ICU), where he was closely observed for any signs of airway obstruction, respiratory distress, or other complications. Pain management was a priority in the postoperative period, as uncontrolled pain can hinder recovery and increase the risk of complications. The patient's pain was carefully managed to ensure his comfort and facilitate his rehabilitation. The multidisciplinary team continued to play a crucial role in the postoperative phase, providing coordinated care and support to the patient. Regular assessments were conducted to monitor his progress and address any emerging issues promptly.[19,20]

4. Conclusion

This case report underscores the multifaceted challenges encountered in managing anesthesia for a patient with an advanced buccal malignancy and pulmonary metastasis. The convergence of a difficult airway, substantial comorbidities, and the inherent risks associated with advanced cancer necessitates a meticulous and individualized anesthetic strategy. A thorough preoperative assessment, including imaging and optimization of comorbidities like anemia and hypoalbuminemia, was essential in preparing the patient for surgery. The choice of awake fiberoptic intubation proved critical in securing the airway, mitigating the risks associated with limited oral cavity access and potential airway collapse. The use of dexmedetomidine and topical lidocaine facilitated awake intubation, providing sedation and analgesia without compromising airway patency or respiratory drive. A multidisciplinary approach, encompassing anesthesiologists, surgeons, and critical care specialists, ensured comprehensive perioperative care, highlighting the importance of coordinated expertise in managing complex oncological cases. Continuous intraoperative vigilance and postoperative monitoring were instrumental in detecting and managing potential complications promptly. This case serves as a valuable reminder of the importance of individualized anesthetic planning, advanced airway

skills, and interdisciplinary collaboration in managing complex surgical patients. It also emphasizes the need for continuous advancements in airway management technologies and techniques to improve the safety and outcomes of patients with challenging airways.

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