ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/25dec596

Advancing Haemorrhage Safety in Oral Surgery: An Integrated Framework for Antithrombotic Patient Management

Dr. Malaika Dedhia[1]; Dr. Khalid Mohammed Agwani[2]; Dr. Sushmit Rajpur[3]; Dr. Dishantkumar Sonpal[4*]; Dr. Shubham Pachwaria[5]; Dr. Saloni Chordia[6]

[2]Professor and Head of the Department, [3]Senior Lecturer, [1,4,5,6]Post Graduate Student

[1,2,3,4,5,6]Department of Oral and Maxillofacial Surgery Darshan Dental College and Hospital Udaipur, India

Corresponding Author: Dr. Dishantkumar Sonpal[4*]

Publication Date: 2025/12/16

Abstract:

- ***Background:***

The growing use of antithrombotic medications has significantly influenced clinical decision-making in oral and maxillofacial surgery, where the risk of perioperative bleeding must be balanced against potentially life-threatening thromboembolic events. Traditional approaches often relied on discontinuing therapy, yet contemporary evidence demonstrates that most haemorrhagic complications can be safely prevented or controlled through structured assessment and refined local haemostatic strategies.

- ***Aim:***

This review examines current evidence regarding haemorrhage management in patients receiving antithrombotic therapy and synthesises a practical, evidence-based protocol tailored to the needs of oral surgeons. It highlights risk assessment principles, operative strategies, and the role of multidisciplinary care in preventing bleeding while maintaining systemic protection.

- ***Conclusion:***

Available literature consistently supports the continuation of antithrombotic therapy for the majority of oral surgical procedures, with effective haemostasis achieved through meticulous technique, appropriate local measures, and patient-specific planning. By integrating established clinical evidence into a unified protocol, this review provides oral surgeons with a reliable framework to optimise patient safety and outcomes in the antithrombotic era.

Keywords: *Anticoagulants; Platelet Aggregation Inhibitors; Oral Surgical Procedures; Hemostasis; Postoperative Hemorrhage*.

How to Cite: Dr. Malaika Dedhia; Dr. Khalid Mohammed Agwani; Dr. Sushmit Rajpur; Dr. Dishantkumar Sonpal; Dr. Shubham Pachwaria; Dr. Saloni Chordia (2025) Advancing Haemorrhage Safety in Oral Surgery: An Integrated Framework for Antithrombotic Patient Management. *International Journal of Innovative Science and Research Technology*, 10(12), 751-756. https://doi.org/10.38124/ijisrt/25dec596

I. INTRODUCTION

Haemorrhage represents one of the most significant perioperative challenges encountered in oral and maxillofacial surgery, particularly as patient demographics shift towards older populations with multiple comorbidities requiring antithrombotic therapy. The increasing use of anticoagulants and antiplatelet agents has fundamentally altered the haemostatic landscape, transforming common procedures such as dental extractions, biopsies, pre-prosthetic surgery, and implant placement into interventions requiring heightened vigilance and structured planning. Evidence shows that perioperative bleeding is an important predictor of postoperative haemorrhage and can compromise surgical outcomes even when procedures are considered minor. The study by Rocha and colleagues highlights that patients on antithrombotic therapy display significantly increased bleeding susceptibility, which reinforces the need for robust haemorrhage protocols in the OMFS setting.[1] As minor oral procedures become more frequent in anticoagulated

ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/25dec596

populations, safe and predictable bleeding control has become an essential competency for all oral surgeons.

➢ *Causes and Aetiology of Haemorrhage in Oral Surgery: -*

The aetiology of haemorrhage in oral surgery is multifactorial, incorporating both systemic and local components. Anticoagulant agents alter the coagulation cascade at various points, while antiplatelet drugs impair platelet aggregation, reducing the stability of the initial clot. Scully and Wolff demonstrated that, prior to modern evidence-based guidance, therapeutic withdrawal was common practice; however, this exposed patients to substantial systemic risks without reliably preventing bleeding, emphasizing the need to understand the true causative mechanisms.[2] Beyond pharmacological influences, postoperative haemorrhage may be linked to surgical trauma, anatomical variations, infection, wound instability, and high-risk extraction sites. Morimoto and colleagues detailed several contributory factors, showing that the interplay between altered haemostasis and local tissue injury determines the final bleeding profile.[3] Even historically, Jensen's analysis of haemorrhage in oral surgery underscored that significant bleeding may occur in patients without systemic impairment, suggesting that surgical technique and anatomical complexity remain core aetiological considerations in contemporary practice.[4]

➢ *Influence of Antithrombotic Therapy: -*

The evolution of antithrombotic therapy has markedly influenced perioperative bleeding risks in OMFS practice. Anticoagulants such as warfarin and direct oral anticoagulants (DOACs) alter thrombin generation, whereas antiplatelet agents reduce clot cohesion, increasing the likelihood of prolonged bleeding. Reich and colleagues studied bleeding complications in patients with compromised haemostasis and confirmed that antithrombotics predispose individuals to both immediate and delayed bleeding episodes.[5] Martinez and Tsakiris later synthesized the principles for managing these medications in oral surgery, illustrating that haemorrhage risk varies according to the invasiveness of the procedure and the mechanism of the antithrombotic agent.[6] Importantly, their guidance reinforced the modern principle that therapy interruption should be avoided for most minor procedures due to the high thromboembolic risk associated with cessation. As global prescribing of DOACs and dual antiplatelet therapy increases, oral surgeons must integrate pharmacological understanding with procedural planning to prevent haemorrhagic complications while maintaining systemic protection.

➢ *Bleeding Disorders Relevant to Oral Surgery: -*

Although antithrombotic therapy represents a major cause of altered haemostasis, inherited and acquired bleeding disorders remain clinically important. Israels and colleagues described the broad spectrum of such conditions, including haemophilia, von Willebrand disease, platelet dysfunction, and liver disease, all of which require extensive preoperative planning.[7] Piot and collaborators demonstrated that safe dental extractions can be achieved in patients with bleeding disorders through appropriate perioperative factor replacement and rigorous haemostatic techniques.[8] Handschel's analysis further revealed that these patients face higher postoperative complication rates, including delayed healing and infection, underscoring the importance of multidisciplinary management.[9] Patron and Ship's earlier work remains foundational, offering structured pathways for assessment and treatment that continue to inform current protocols.[10] Recent evidence from Fribourg and colleagues confirms that, with modern management strategies, oral surgery in patients with inherited bleeding disorders can be performed safely, although vigilance remains essential.[11] Furthermore, Mensah and Gooding emphasised the critical role of perioperative anaesthetic planning in such cases, demonstrating that haemorrhage risk is influenced not only by systemic disease but also by anaesthetic technique.[12] Hsieh's decade-long clinical review supports these conclusions, reinforcing the need for consistent postoperative monitoring in high-risk groups.[13]

➢ *Surgeon-Based Risk Assessment and Clinical Decision-Making: -*

Effective haemorrhage management begins with comprehensive risk assessment. Surgeons must evaluate both systemic and local risk factors, integrating patient-specific anticoagulation status, comorbidities, bleeding history, and laboratory findings. Akolkar's systematic review emphasised the importance of structured preoperative assessment to identify patients requiring modified surgical or postoperative plans.[14] Ahmed's review further highlighted that risk stratification enables clinicians to determine which local or systemic interventions are necessary to prevent excessive bleeding.[15] Local anatomical risk factors, such as proximity to major vessels, degree of tissue trauma, and the presence of infection, require equal consideration. Mp's analysis of haemostatic agents demonstrated that local bleeding risk can be significantly mitigated by combining appropriate surgical technique with the correct choice of haemostatic materials.[16] Scarano's review supports this approach, noting that improved understanding of local agents has transformed the predictability of haemorrhage control across both minor and major surgical procedures.[17] The surgeon's ability to assess risk comprehensively, anticipate complications, and apply appropriate interventions remains a central determinant of successful outcomes.

➢ *Modern Management Approaches in Haemorrhage Control: -*

Advances in research have provided surgeons with a robust evidence base to guide haemorrhage control. Khanna and Dagum's critical review elucidated evidence-based pathways for managing life-threatening haemorrhage, integrating principles of airway stability, rapid surgical intervention, and multidisciplinary coordination.[18] Della Valle's research on platelet-rich plasma (PRP) offers an innovative alternative to traditional local haemostatic methods, demonstrating improved clot stability in anticoagulated patients.[19] In surgical scenarios involving glandular or ductal bleeding, Klem and Mair's description of four-duct ligation illustrates how anatomical knowledge can be applied to mitigate haemorrhage.[20] Similarly, Homze and colleagues provided a detailed anatomical framework for extraoral ligation of the lingual artery, offering crucial

ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/25dec596

insights for managing severe bleeding in difficult-to-access areas.[21] For extreme cases, Bouloux and Perciaccante compared external carotid artery ligation with interventional embolisation, demonstrating that modern vascular management now includes minimally invasive alternatives that significantly reduce morbidity.[22] These developments highlight the expanding range of surgical and non-surgical options available to clinicians for managing haemorrhage safely and predictably.

- *Local and Systemic Haemostatic Strategies: -*

Local haemorrhage control remains the cornerstone of bleeding management in OMFS practice. Tomljenovic's review of life-threatening haemorrhage in implant surgery illustrated how local anatomy, surgical technique, and systemic risk factors converge to influence outcomes.[23] Pollei's examination of bleeding in transoral oropharyngeal surgery further demonstrated the interplay between local haemostasis, systemic therapy, and surgical complexity.[24] In patients on dual antiplatelet therapy, Herman's findings confirmed that careful application of local measures such as pressure, suturing, haemostatic agents, and postoperative monitoring can effectively prevent major bleeding complications without altering systemic therapy.[25] Lillis expanded on this by analysing bleeding profiles across different antiplatelet regimens, providing crucial data that assist surgeons in predicting clinical bleeding behaviour.[26] Napeñas' multicentre analysis offered further reassurance, showing that most bleeding episodes in antiplatelet patients are minor and manageable with standard local measures.[27] Bajkin's research similarly confirmed that both single and dual antiplatelet therapy are compatible with routine oral surgery when robust haemostatic techniques are applied.[28] These findings collectively reinforce the modern paradigm that systemic therapy should rarely be interrupted and that local haemostasis remains paramount.

- *Major Haemorrhage Protocols and High-Risk Scenarios: -*

Despite careful planning, major haemorrhage may still arise in oral and maxillofacial surgical practice. Ockerman's systematic review of dual antiplatelet therapy provides essential insight into high-risk cases, demonstrating that although bleeding risk increases, the majority of episodes can be effectively managed within structured protocols.[29] Li's meta-analysis supports these conclusions, revealing predictable bleeding patterns that can be mitigated through careful surgical and postoperative planning.[30] Rodríguez-Cabrera's review further consolidates the evidence for safe practice under antiplatelet therapy, reinforcing that most complications are minor when local measures are properly employed.[31] Aspirin therapy, traditionally misunderstood, was clarified by Verma, who demonstrated that extractions under continuous aspirin therapy can be performed without undue bleeding risk, supporting modern recommendations to maintain therapy.[32] Al-Mubarak's consensus guidelines integrated this evidence into practical recommendations, offering surgeons a structured framework for perioperative management.[33] Finally, O'Riordan synthesised the most contemporary evidence regarding antiplatelet and anticoagulant management, confirming that modern oral surgery can be carried out safely with continuity of therapy when haemorrhage protocols are properly followed.[34]

- *Contemporary Surgical Practice and Evolving Standards: -*

The cumulative evidence from the literature reflects a profound transformation in how oral surgeons conceptualize and manage haemorrhage. Where earlier practice relied heavily on therapy interruption and empirical interventions, modern protocols emphasize pharmacological understanding, risk stratification, multidisciplinary coordination, and the selective application of local and systemic haemostatic measures. The progression of evidence from foundational clinical observations to rigorous meta-analyses demonstrates a continual refinement of practice standards. Today, oral surgeons operate in an environment where patients often have medically complex profiles requiring antithrombotic therapy, necessitating sophisticated clinical reasoning to balance bleeding and thrombotic risks. Contemporary practice embraces minimally invasive surgical approaches, refined local haemostatic materials, and collaboration with haematology and cardiology teams, allowing procedures to be performed safely even in high-risk patients.

- *Rationale for This Review: -*

The increasing prevalence of antithrombotic medication in the general population, combined with the rising volume and complexity of oral surgical procedures, underscores the urgent need for a unified, evidence-based framework for managing haemorrhage in the antithrombotic era. The literature demonstrates that while bleeding risk is genuine, it is predictable, modifiable, and manageable through adherence to structured protocols. Despite this, clinical practice remains variable, and confusion persists regarding when to continue or interrupt therapy, which local measures are most effective, and how to respond when bleeding becomes severe. This review synthesises the highest-quality evidence across antithrombotic therapy, inherited bleeding disorders, local haemostasis, major haemorrhage management, and surgical risk assessment, providing oral surgeons with a comprehensive and practical protocol to guide clinical decision-making. Through this structured approach, the review aims to enhance patient safety, reduce complications, and promote consistent high-quality care in the increasingly complex landscape of contemporary oral surgery.

II. DISCUSSION

The collective evidence from existing literature demonstrates that haemorrhage management in oral and maxillofacial surgery requires a stratified, evidence-driven approach that integrates systemic risk assessment, local haemostatic techniques, and a nuanced understanding of antithrombotic pharmacology. Across the studies reviewed, a consistent message emerges: continuation of antithrombotic therapy is generally safer than interruption, and with appropriate planning and haemostatic measures, the majority of oral surgical procedures can be performed without significant bleeding complications.

ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/25dec596

One of the earliest and clearest demonstrations of this principle was provided by Rocha and colleagues, who identified perioperative bleeding as a significant driver of postoperative haemorrhage in anticoagulated patients, emphasising that risk is magnified when surgical trauma is high or local measures are insufficient.[1] Their findings support a proactive approach centred on optimising local haemostasis rather than altering systemic therapy. Scully and Wolff similarly cautioned against unnecessary therapy interruption, noting that bleeding complications are typically manageable whereas thromboembolic complications associated with discontinuation may be fatal.[2] These foundational works underpin the modern paradigm of maintaining anticoagulation wherever possible.

Further refinement of this risk-benefit balance comes from Morimoto's detailed analysis of postoperative haemorrhage in patients under antithrombotic therapy, which demonstrated that bleeding outcomes are influenced not only by medication but also by procedural complexity, tooth type, infection, and local inflammation.[3] Jensen's early work also supports this understanding by showing that haemorrhage is not solely driven by systemic factors but often emerges from surgical technique and local tissue response.[4] Together, these studies reinforce the need for surgeons to evaluate both systemic therapy and intraoperative factors that may exacerbate bleeding.

Reich's work on compromised haemostasis further highlights the variability in patient responses to surgical intervention, showing that medically complex individuals frequently experience delayed or secondary haemorrhage.[5] This aligns with the structured recommendations of Martinez and Tsakiris, who proposed a risk-stratified algorithm for antithrombotic management based on procedural invasiveness and thromboembolic risk.[6] Their guidance supports the development of clinical pathways that preserve systemic therapy while minimising surgical bleeding an approach central to our article's proposed protocol.

The literature on inherited bleeding disorders provides additional insight into management strategies. Israels and colleagues' detailed classification of bleeding disorders illustrates the need for multidisciplinary coordination and preoperative optimisation in patients with intrinsic coagulation abnormalities.[7] Piot's study highlighted that factor replacement, suturing protocols, and adjunctive haemostatic agents enable safe extractions even in severe bleeding disorders.[8] Handschel further emphasised that such patients face heightened risks not only of haemorrhage but also of postoperative infection and delayed healing, underscoring the necessity for enhanced follow-up strategies.[9] Patron and Ship's early guidance remains clinically relevant, providing structured assessment models that complement modern haemostatic approaches.[10] More contemporary evidence from Fribourg and Mensah extends these findings to complex surgical scenarios, reinforcing that individualised planning, anaesthetic involvement, and standardised postoperative review substantially reduce morbidity.[11,12]

When considering local haemostatic strategies, multiple authors provide insight into materials and techniques that improve outcomes. Akolkar's systematic review emphasised the value of multimodal haemostasis, incorporating pressure, suturing, collagen foams, fibrin sealants, and tranexamic acid mouthrinses to achieve predictable bleeding control.[14] Ahmed similarly concluded that local measures remain the cornerstone of haemorrhage management even in anticoagulated patients, advocating a procedural protocol grounded in established haemostatic principles.[15] Mp's review showed that no single haemostatic agent is universally superior, instead recommending that surgeons select agents based on wound morphology, surgical difficulty, and expected clot stability.[16] Scarano expanded on this by examining emerging haemostatic technologies, reaffirming that advancements in biomaterials continue to improve bleeding outcomes in both high-risk and routine procedures.[17]

For major or life-threatening haemorrhage, the recommendations differ substantially. Khanna and Dagum provided an evidence-based framework for resuscitation, vascular control, and airway stabilization, establishing essential principles for managing intraoperative emergencies.[18] Della Valle's work on platelet-rich plasma suggests that biological augmentation can reduce postoperative bleeding in anticoagulated patients, offering an adjunctive strategy for high-risk surgical fields.[19] The anatomical studies of Klem, Homze, and Bouloux collectively demonstrate the surgical options for controlling severe haemorrhage through arterial ligation or endovascular intervention.[20,21,22] These techniques, although rarely needed, form the backbone of contingency planning in OMFS practice.

The literature related to antiplatelet therapy is particularly relevant in the current era, as dual antiplatelet therapy (DAPT) becomes increasingly common following cardiovascular interventions. Herman's analysis demonstrated that most bleeding events under DAPT are minor and readily controlled with local measures, supporting the principle that therapy should not be interrupted for routine oral surgery.[25] Lillis provided comparative data demonstrating that agents such as clopidogrel, aspirin, and ticagrelor exhibit predictable bleeding patterns that can be managed safely with conservative measures.[26] Napeñas corroborated this by showing that clinically significant haemorrhage is rare, providing reassurance that even invasive dental procedures can be safely performed without modification of antiplatelet regimens.[27] Bajkin and Ockerman further supported this evidence with systematic data demonstrating low rates of clinically significant haemorrhage under both single and dual antiplatelet therapy.[28,29] Meta-analyses by Li and Rodríguez-Cabrera confirm these observations and provide the statistical power to reinforce modern clinical guidelines.[30,31] Verma and Al-Mubarak contributed practical recommendations that integrate these findings into everyday surgical practice.[32,33] O'Riordan synthesized contemporary evidence, reinforcing that continuation of therapy combined with robust local measures represents best

ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/25dec596

practice for the majority of patients undergoing oral surgery.[34]

➢ *What This Article Seeks to Reflect*

Based on the collective findings of these authors, this review articulates a clear clinical stance: oral surgeons should prioritize continuation of antithrombotic therapy, apply structured preoperative risk assessment, and utilize evidence-based local haemostatic strategies to control bleeding effectively.

- *Our Article Synthesizes these Insights into a Practical Management Framework that:*

✓ Emphasizes the primacy of local haemostasis over systemic therapy alteration,
✓ Discourages unnecessary discontinuation of antithrombotic agents,
✓ Supports risk-stratified decision-making grounded in established predictive factors,
✓ Promotes the use of multimodal haemostatic agents in high-risk patients,
✓ Recognizes the importance of multidisciplinary care for inherited disorders,
✓ And outlines contingency strategies for major haemorrhage, including vascular control options.

By integrating broad literature with current OMFS surgical realities, this discussion positions haemorrhage management not as an isolated technical task but as a structured, reflective, and evidence-driven component of safe surgical practice.

III. CONCLUSION

Effective haemorrhage management in oral and maxillofacial surgery requires a balanced, evidence-driven approach that safeguards both surgical outcomes and systemic patient safety. The literature consistently demonstrates that continuation of antithrombotic therapy, combined with meticulous local haemostasis and structured risk assessment, provides the safest and most predictable outcomes. Surgeons must integrate pharmacological understanding, anatomical precision, and contemporary haemostatic techniques to manage bleeding confidently across routine and complex procedures. By synthesising established evidence and modern clinical strategies, this review reinforces a practical framework that supports safe, consistent, and responsible surgical care in the antithrombotic era.

ACKNOWLEDGMENT

I express my sincere gratitude to Dr. Khalid Mohammed Agwani, my Head of Department, and to Dr. Dishantkumar Sonpal, my senior, for his innovative ideas, which greatly contributed to the development and completion of this article.

Declarations include Funding: No funds, grants, or other support was received

Competing interests: Nil

Ethics approval*:* Not Applicable

Consent*:* Not Applicable

REFERENCES

[1]. Rocha AL, Souza AF, Martins MA, Fraga MG, Travassos DV, Oliveira AC, Ribeiro DD, Silva TA. Oral surgery in patients under antithrombotic therapy: perioperative bleeding as a significant risk factor for postoperative hemorrhage. Blood Coagulation & Fibrinolysis. 2018 Jan 1;29(1):97-103.
[2]. Scully C, Wolff A. Oral surgery in patients on anticoagulant therapy. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. 2002 Jul 1;94(1):57-64.
[3]. Morimoto Y, Niwa H, Minematsu K. Risk factors affecting postoperative hemorrhage after tooth extraction in patients receiving oral antithrombotic therapy. Journal of oral and maxillofacial surgery. 2011 Jun 1;69(6):1550-6.
[4]. Jensen PS. Hemorrhage after oral surgery: an analysis of 103 cases. Oral Surgery, Oral Medicine, Oral Pathology. 1974 Jan 1;37(1):2-16.
[5]. Reich W, Kriwalsky MS, Wolf HH, Schubert J. Bleeding complications after oral surgery in outpatients with compromised haemostasis: incidence and management. Oral and maxillofacial surgery. 2009 Jun;13(2):73-7.
[6]. Martinez M, Tsakiris DA. Management of antithrombotic agents in oral surgery. Dentistry journal. 2015 Oct 6;3(4):93-101.
[7]. Israels S, Schwetz N, Boyar R, McNicol A. Bleeding disorders: characterization, dental considerations and management. Journal of the Canadian Dental Association. 2006 Nov 1;72(9).
[8]. Piot B, Sigaud-Fiks M, Huet P, Fressinaud E, Trossaërt M, Mercier J. Management of dental extractions in patients with bleeding disorders. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. 2002 Mar 1;93(3):247-50.
[9]. Handschel J, Willamowski C, Smeets R, Ommerborn MA, Naujoks C, Kübler NR, Depprich R. Complications after oral surgery in patients with congenital or drug-induced bleeding disorders. in vivo. 2011 Mar 1;25(2):283-6.
[10]. Patron LL, Ship JA. Treatment of patients with bleeding disorders. Dental Clinics of North America. 1994 Jul 1;38(3):465-82.
[11]. Fribourg E, Castet S, Fénelon M, Huguenin Y, Fricain JC, Chuy V, Catros S. Oral surgery in people with inherited bleeding disorder: A retrospective study. Haemophilia. 2024 Jul;30(4):943-9
[12]. Mensah PK, Gooding R. Surgery in patients with inherited bleeding disorders. Anaesthesia. 2015 Jan;70:112-e40.
[13]. Hsieh JT, Klein K, Batstone M. Ten-year study of postoperative complications following dental extractions in patients with inherited bleeding

ISSN No: -2456-2165 https://doi.org/10.38124/ijisrt/25dec596

disorders. International Journal of Oral and Maxillofacial Surgery. 2017 Sep 1;46(9):1147-50.
[14]. Akolkar AR, Kulkarni DG, Gangwani KD, Shetty L, Channe SP, Sarve PH. Bleeding control measures during oral and maxillofacial surgical procedures: A systematic review. Journal of Dental Research and Reviews. 2017 Dec;4(4):79-89.
[15]. Ahmed S. Management of Hemorrhage in Minor Dental Operations-A Systematic Review. Oral & Maxillofacial Pathology Journal. 2021 Jul 1;12(2).
[16]. Mp SK. Local hemostatic agents in the management of bleeding in oral surgery. Asian J Pharm Clin Res. 2016;9(3):35-41.
[17]. Scarano A, Murmura G, Di Cerbo A, Palmieri B, Pinchi V, Mavriqi L, Varvara G. Anti-hemorrhagic agents in oral and dental practice: an update. International Journal of Immunopathology and Pharmacology. 2013 Oct;26(4):847-54.
[18]. Khanna S, Dagum AB. A critical review of the literature and an evidence-based approach for life-threatening hemorrhage in maxillofacial surgery. Annals of plastic surgery. 2012 Oct 1;69(4):474-8.
[19]. Della Valle A, Sammartino G, Marenzi G, Tia M, di Lauro AE, Ferrari F, Muzio LL. Prevention of postoperative bleeding in anticoagulated patients undergoing oral surgery: use of platelet-rich plasma gel. Journal of oral and maxillofacial surgery. 2003 Nov 1;61(11):1275-8.
[20]. Klem C, Mair EA. Four-duct ligation. Arch Otolaryngol Head Neck Surg. 1999 Jul;125:796-800.
[21]. Homze EJ, Harn SD, Bavitz BJ. Extraoral ligation of the lingual artery: an anatomic study. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. 1997 Mar 1;83(3):321-4.
[22]. Bouloux GF, Perciaccante VJ. Massive hemorrhage during oral and maxillofacial surgery: ligation of the external carotid artery or embolization?. Journal of oral and maxillofacial surgery. 2009 Jul 1;67(7):1547-51.
[23]. Tomljenovic B, Herrmann S, Filippi A, Kühl S. Life-threatening hemorrhage associated with dental implant surgery: a review of the literature. Clinical oral implants research. 2016 Sep;27(9):1079-84.
[24]. Pollei TR, Hinni ML, Moore EJ, Hayden RE, Olsen KD, Casler JD, Walter LC. Analysis of postoperative bleeding and risk factors in transoral surgery of the oropharynx. JAMA Otolaryngology–Head & Neck Surgery. 2013 Nov 1;139(11):1212-8.
[25]. Herman WW, Konzelman JL Jr, Sutley SH. Hemorrhagic complications of dental extractions in 181 patients undergoing double antiplatelet therapy. J Oral Maxillofac Surg. 2015;73(2):203-210.
[26]. Lillis T, Ziakas A, Koskinas K, Tsirlis A, Giannoglou G. Bleeding frequency of patients taking ticagrelor, aspirin, clopidogrel, and dual antiplatelet therapy after tooth extraction and minor oral surgery. J Am Dent Assoc. 2018;149(2):132-138.
[27]. Napeñas JJ, Hong CH, Brennan MT, Furney SL, Fox PC, Lockhart PB. The frequency of bleeding complications after invasive dental treatment in patients receiving single and dual antiplatelet therapy. J Am Dent Assoc. 2009;140(6):690-695.
[28]. Bajkin BV, Urosevic IM, Stankov KM, Petrovic BB, Bajkin IA. Dental extractions and risk of bleeding in patients taking single and dual antiplatelet treatment. Br J Oral Maxillofac Surg. 2015;53(1):39-43.
[29]. Ockerman A, Van Maele G, Miclotte I, Politis C, Van der Cruyssen F. Incidence of bleeding after minor oral surgery in patients on dual antiplatelet therapy: a systematic review and meta-analysis. Int J Oral Maxillofac Surg. 2020;49(1):90-98.
[30]. Li L, Zhang W, Jiang X. Dental management of patient with dual antiplatelet therapy: a meta-analysis. Clin Oral Investig. 2019;23(4):1615-1623.
[31]. Rodríguez-Cabrera MA, Barona-Dorado C, Leco-Berrocal I, Cortés-Bretón Brinkmann J, Martínez-González JM. Antiplatelet therapy in patients undergoing oral surgery: A systematic review and meta-analysis. Med Oral Patol Oral Cir Bucal. 2019;24(2):e216-e224.
[32]. Verma G. Dental extraction can be performed safely in patients on aspirin therapy: a timely reminder. ISRN Dent. 2014;2014:463684.
[33]. Al-Mubarak S, Al-Ali J, Abou-Rass M. Recommendations for the management of dental patients receiving antiplatelet therapy. Int J Oral Maxillofac Surg. 2007;36(7):620-631.
[34]. O'Riordan B. Management of dental patients receiving antiplatelet therapy or chronic oral anticoagulation: A review of the latest evidence. J Ir Dent Assoc. 2018;64(4):186-192.