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Case Report

Management of a Hypertensive Crisis Post-Tooth Extraction: A Case Report

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Abstract

Introduction: A hypertensive crisis is a clinical situation resulting from an acute elevation in blood pressure (BP) and can represent a life-threatening risk, thus requiring efficient and timely management.

Clinical case: A 45-year-old male patient with uncontrolled hypertension presented to the Bellavista CESFAM with severe pain in the lower third molar, diagnosed with an acute apical abscess. During the tooth extraction, a fracture of the distal root occurred along with a hypertensive crisis, which was managed at the facility. One month later, with his blood pressure controlled, the retained root was extracted.

Discussion: The management of the patient's pain, anxiety, and stress, along with the use of anesthetics without a vasoconstrictor, are key to preventing acute elevations in blood pressure during invasive dental procedures.

Conclusion: This report emphasizes the importance of a comprehensive anamnesis and proper management in hypertensive patients to prevent intraoperative complications, including hypertensive crises.

Keywords: *Hypertensive Crisis, Hypertensive Urgency, Acute Apical Abscess, Tooth Extraction, Case Report.*

Introduction

Blood pressure (BP) is the force exerted by circulating blood against the walls of the arteries. It is divided into systolic blood pressure (SBP), the highest, which occurs when the heart contracts and pumps blood to the body, and diastolic blood pressure (DBP), the lowest, which occurs when the heart relaxes between beats[1].

This is classified into different grades[5].

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (top/upper number)	and/or	DIASTOLIC mm Hg (bottom/lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
STAGE 1 HYPERTENSION (High Blood Pressure)	130 – 139	or	80 – 89
STAGE 2 HYPERTENSION (High Blood Pressure)	140 OR HIGHER	or	90 OR HIGHER
SEVERE HYPERTENSION (if you don't have symptoms*, call your health care professional)	HIGHER THAN 180	and/or	HIGHER THAN 120
HYPERTENSIVE EMERGENCY (if you have any of these symptoms*, call 911)	HIGHER THAN 180	and/or	HIGHER THAN 120

Figure 1. *BP classification in grades.*

Source: American Heart Association (2025)

On the other hand, arterial hypertension (AHT) is a condition in which the blood pressure in the arteries is too high. The main risk factors are: advanced age, overweight or obesity, sedentary lifestyle, high sodium diet, tobacco and alcohol consumption, and other diseases such as diabetes or nephropathies[1].

AHT is attributed to the highest burden of deaths in Chile and constitutes the GES n°21 (Explicit Health Guarantees) in our country[2]. According to the National Health Survey in Chile (2016 and 2017), its prevalence is 27.3%, being higher in men aged 65 or older[3].

This pathology is relevant, as elevated blood pressure levels can affect organs such as the brain, heart, and kidneys, leading to complications such as cardiovascular disease (CVD), acute myocardial infarction (AMI), coronary heart disease, heart failure, and renal failure[4].

Hypertensive crisis

A hypertensive crisis is a clinical situation resulting from an acute elevation in blood pressure (BP) that requires efficient, rapid, and monitored management. SBP must be greater than 180 mmHg and/or DBP greater than 120 mmHg, accompanied by an evident manifestation of symptoms[5].

Life-threatening risk determines whether it is a hypertensive urgency or emergency. Hypertensive urgency is a sudden and symptomatic elevation of BP; it must be controlled quickly, but not immediately, as there is no life-threatening risk. Treatment can be outpatient with frequent check-ups, and rapid-titration oral hypotensive agents are used. Conversely, in a hypertensive emergency, the patient's life and/or the integrity of vital organs are threatened, which mandates immediate control within minutes or hours. This requires hospital management and the use of parenteral hypotensive agents[6,7].

Common signs and symptoms include: severe headache, dizziness, tinnitus, dyspnea, epistaxis, palpitations, blurred vision, nausea or vomiting, and excessive sweating[7]. However, in a hypertensive emergency, alterations in mental status, chest pain, weakness on one side of the body, difficulty speaking, seizures, and temporary loss of vision may also occur[7].

Case Presentation

Chief complaint and anamnesis

A 45-year-old male patient presented to the dental emergency service of the Bellavista CESFAM in La Florida, Santiago de Chile, stating as his chief complaint: "A tooth hurts a lot and I can't stand the pain anymore."

He reported severe pain that began 2 days prior, related to the right lower molar, Visual Analog Scale (VAS) 10, spontaneous and constant, localized, throbbing, with a sensation of an elongated tooth, which had been intensifying since the previous day and was aggravated by chewing. Furthermore, he reported difficulty opening his mouth, which prevented him from eating. He mentioned having self-medicated with Amoxicillin and paracetamol, but the pain did not subside with medications or other therapies.

As a relevant medical history, he presented uncontrolled AHT. He reported habitually taking Losartan and Amlodipine, but had not attended a medical check-up for a year. He presented no allergies. History of tobacco (10 cigarettes a month), alcohol, and marijuana consumption (sporadic). Regarding his dental history, he had previously undergone supragingival scaling, restorations, and extractions.

Clinical and radiographic examination

In the extraoral clinical examination, the patient was observed with a painful facies, without the presence of volume increase, and no palpable adenopathies were detected.

Being an emergency and not considered at the time as a future case report, extra- and intraoral photographs were not taken at that moment.

On intraoral clinical examination, the following was observed: permanent dentition, partial bimaxillary edentulism, and absence of teeth 2.7, 3.7, and 3.8. Hard and soft deposits of bacterial plaque, multiple restorations, and active caries were present. Tooth 4.8 exhibited a deep caries lesion (ICDAS 6) without the presence of pathologic mobility. It did not participate in occlusion. The vestibule was unoccupied, with surrounding erythematous mucosa. He presented pain on palpation and percussion (VAS 8).

Regarding the radiographic examination, a periapical radiograph of tooth 4.8 was requested (Figure 2). It showed penetrating caries, the presence of 2 roots, an interradicular lesion, and a pararadicular lesion on the mesial root.

Figure 2. Periapical radiograph of tooth 4.8

Therapeutic Intervention

During the anamnesis, the patient reported being hypertensive and not having taken his antihypertensive medication; thus, his blood pressure was recorded, revealing 177/110 mmHg (asymptomatic). Since it was an emergency, a right indirect Spix anesthetic technique (1 cartridge of 3%) was performed to relieve the pain. He was instructed to take his antihypertensive medication and to have a radiograph taken at the CESFAM to evaluate the extraction due to a poor prognosis.

Once the patient reported having followed all instructions, a BP of 148/96 mmHg was recorded. He signed the informed consent (Annex 7 and 8) and the GES notification. A right indirect Spix anesthetic technique (2 cartridges of 3%) was performed, reinforced with vestibular infiltrative (½ cartridge) and intraligamentary (¼ cartridge) anesthesia without a vasoconstrictor due to persistent pain. Luxation and avulsion were performed with an elevator and curved forceps on the medial edge.

At the time of the extraction, a fracture of the distal root occurred, a fact that was explained to the patient. The procedure was interrupted upon observing him fatigued; he reported feeling dizzy but insisted on finishing the extraction. The treatment was suspended and a BP of 248/136 mmHg was recorded. Subsequently, he manifested a severe headache, blurred vision, dyspnea, tinnitus, chest pain, and paresthesia in his left arm and right leg.

The facility's hypertensive crisis protocol was activated, and the patient was calmed down and referred to the CESFAM's SAC (Continuous Care Service). There, he was evaluated and treated by a medical team, to whom he admitted having omitted relevant information, such as a history of cocaine use and not having taken his AHT medication prior to the extraction as indicated.

In the SAC, the following was recorded: BP 210/120 mmHg, HR 78 bpm, and O2 Sat 96%. An ECG was performed, which showed no acute coronary syndrome, confirming the diagnosis of hypertensive urgency without target organ damage. He was treated with IV Metamizole sodium 100cc and sublingual Captopril 25 mg. He was kept under observation until BP stabilization.

Follow-Up and Results

He was scheduled for a follow-up appointment in a week; the patient was asymptomatic. However, it was decided to postpone the extraction of the root remnant due to uncontrolled blood pressure and a history of another hypertensive urgency in the preceding days, where he had been attended again in the CESFAM's SAC.

The patient was instructed to regulate his blood pressure with a physician. After 3 weeks, the alveolus was observed undergoing a normal healing process; the distal root was not visualized.

Figure 3. *Intraoral image. Post-extraction alveolus of tooth 4.8.*

Figure 4. *Periapical radiograph of root remnant of tooth 4.8.*

His BP was recorded at 122/88 mmHg. A periapical radiograph was requested to evaluate the extraction of the root remnant.

An indirect Spix anesthetic technique (2 cartridges of 2%) and an intraligamentary technique (½ cartridge of 3%) were performed, along with a linear flap anterior to the retromolar pad area to expose the distal root. Luxation and avulsion with a left Winter elevator were performed, followed by two simple interrupted sutures using 3/0 silk. Verbal and written instructions were provided, and Paracetamol (2 tablets every 8 hours for 3 days) was prescribed.

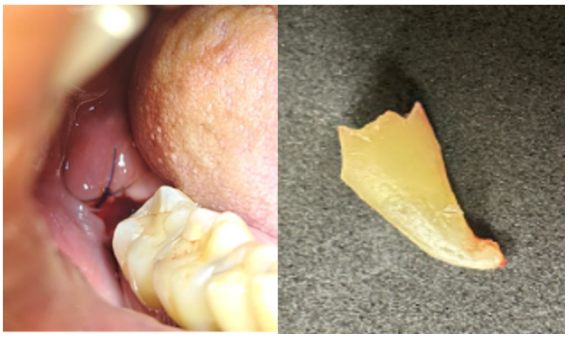

Figure 5. Intraoral image. Extraction of distal root of tooth 4.8

Figure 6. Intraoral image. Post-extraction alveolus of distal root of tooth 4.8

After 2 weeks, the suture was removed, and no post-extraction complications were observed.

He was scheduled for a follow-up in a week for suture removal; again, the patient did not attend the agreed appointment, and contact was successfully established 2 weeks later.

Discussion

According to the American Dental Association (ADA), any surgical procedure should be postponed in patients presenting blood pressure levels ≥180/110 mmHg, due to the high probability of complications such as AMI or stroke[8].

It has been shown that procedures such as tooth extraction are capable of inducing a significant increase in BP, particularly in patients with dental anxiety or phobia[9]. Dental pain during invasive or emergency treatments and stress can generate an activation of the sympathetic nervous system, producing an elevation in BP mediated by the release of endogenous catecholamines[10]. This phenomenon can be exacerbated if combined with the administration of local anesthetics with a vasoconstrictor, such as epinephrine[11].

Although the use of epinephrine in low concentrations (1:100,000 or 1:200,000) is safe in most controlled hypertensive patients, in individuals with elevated blood pressure it can trigger a hypertensive crisis or arrhythmias, especially if an accidental intravascular injection occurs[11]. Therefore, clinical guidelines recommend aspirating before injecting, limiting the total dose of vasoconstrictor to 2 cartridges, and using anesthetics without epinephrine in cases of uncontrolled AHT[12].

On the other hand, the use of anxiolytics such as oral diazepam or midazolam can be useful in patients with severe anxiety, always under medical prescription, to prevent a possible hypertensive response to stress[13]. In this case, it would have been beneficial given the patient's psychological profile, but it was not possible since it was a dental emergency rather than a premeditated appointment.

In this instance, although the patient claimed his condition was controlled and he was taking antihypertensives, he lacked a recent BP record or proof of medical follow-up, demonstrating a failure in the preoperative evaluation. This highlights the importance of a comprehensive anamnesis and BP measurement prior to a tooth extraction in patients with risk factors. Nevertheless, the clinical management of the hypertensive crisis was appropriate: the procedure was suspended, the patient was monitored, and he was referred to the CESFAM's SAC for urgent care. According to the American Heart Association, hypertensive crises must be treated by specialized medical personnel, avoiding dental procedures until safe blood pressure levels are achieved[14].

During a hypertensive crisis, it is recommended to: activate the blue code or another facility emergency protocol, position the patient semi-seated or seated, and continuously monitor vital signs. If blood pressure readings are greater than 180/120 mmHg and symptoms are present, administer Captopril 25 mg SL. Provide oxygen support via mask or nasal cannula at 2/3 L per minute if necessary. It is critical to screen for symptoms of angina/stroke and, if an associated AMI is suspected, administer ASA and nitroglycerin 0.6 mg SL. If the patient is unconscious and pulseless, initiate CPR maneuvers and/or use an AED until medical care is available[7,15].

Aggressive treatment of patients with an asymptomatic elevation of BP should be avoided[7,15]. In these patients, drugs that rapidly reduce blood pressure within minutes are formally contraindicated, as the final effect could be significant hypotension resulting in coronary or cerebral hypoperfusion[7,15].

Finally, in this case, management was hindered by the internal organization of the CESFAM, leading to slow and inefficient care. For this reason, the implementation of standardized protocols and training in primary health care (PHC) facilities is of great importance to prevent future complications for the patient.

Conclusion

The management of a patient with a hypertensive crisis requires a comprehensive approach that includes accurate diagnosis, treatment, and timely follow-up. A complete anamnesis and an emergency care protocol are essential to prevent complications. In the dental practice, it is key to control factors that predispose to BP elevation, such as pain, anxiety, and stress, in addition to avoiding anesthetics with a vasoconstrictor in uncontrolled hypertensive patients.

It is also essential to monitor vital signs prior to invasive procedures and to emphasize, through informed consent, the importance of the patient declaring their entire medical history and relevant habits for a safer and more effective management of the case.

Conflict of Interest

The author declared no conflicts of interest related to this study.

References

1. World Health Organization (WHO). Hypertension [Internet]. Geneva: WHO; 2023 [cited 2025 Oct 3]. Available from: https://www.who.int/es/news-room/fact-sheets/detail/hypertension

2. Ministry of Health, Government of Chile. Clinical Guideline: Primary or Essential Arterial Hypertension in Persons Aged 15 and Over; 2010. https://www.minsal.cl/portal/url/item/7220fdc4341c44a9e04001011f0113b9.pdf

3. Ministry of Health. National Health Survey 2016-2017 First results. Dep Epidemiol Div Planif Sanit Subsecr Salud Pública. Published online 2017:61. http://web.minsal.cl/wp-content/uploads/2017/11/ENS-2016-17_PRIMEROS-RESULTADOS.pdf

4. Castro P. MC, Mora M. I. Tratamiento de la Hipertensión Arterial [Internet]. Santiago: Universidad Católica de Chile, Escuela de Medicina; 2021 Aug [cited 2025 Oct 3]. Available from: https://medicina.uc.cl/publicacion/tratamiento-de-la-hipertension-arterial/

5. American Heart Association. Understanding Blood Pressure Readings [Internet]. Dallas (TX): American Heart Association; [cited 2025 Oct 3]. Available from: https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings

6. Whelton PK, Carey RM, Aronow WS, Casey DE, Collins KJ, Dennison Himmelfarb C, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: executive summary. Hypertension. 2018;71(6):1269-1324. doi:10.1161/HYP.0000000000000066

7. Valdés S Gloria, Roessler B Emilio. Recomendaciones para el manejo de las crisis hipertensivas: Documento de Consenso de la Sociedad Chilena de Hipertensión Arterial. Rev. méd. Chile [Internet]. 2002 Mar [cited 2025 Oct 03]; 130(3): 322-331. Available from: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0034-98872002000300013&lng=es

8. American Dental Association (ADA). (2020). Dental Management of the Medically Compromised Patient. ADA Guidelines.

9. Dionne, R. A., Campbell, R. A., et al. (2001). Influence of dental anxiety on pain perception and blood pressure during dental extractions. Journal of the American Dental Association, 132(6), 786-794.

10. Gupta K, Kumar S, Anand Kukkamalla M, Taneja V, Syed GA, Pullishery F, Zarbah MA, Alqahtani SM, Alobaoid MA, Chaturvedi S. Dental Management Considerations for Patients with Cardiovascular Disease-A Narrative Review. Rev Cardiovasc Med. 2022 Jul 20;23(8):261. doi: 10.31083/j.rcm2308261. PMID: 39076626; PMCID: PMC11266964.

11. Malamed, S. F. (2019). Medical Emergencies in the Dental Office (7th ed.). Elsevier Health Sciences.

12. American Heart Association (AHA). (2017). Understanding Blood Pressure Readings. Retrieved from: https://www.heart.org

13. Little, J. W., Falace, D. A., et al. (2017). Dental Management of the Medically Compromised Patient (8th ed.). Elsevier.

14. Carey, R. M., Whelton, P. K., et al. (2018). Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force. Hypertension, 71(6), e13–e115.

15. Kulkarni S, Glover M, Kapil V, et al. Management of hypertensive crises: British and Irish Hypertension Society Position document. Journal of Human Hypertension. October 2023; 37(10):863-879. DOI: 10.1038/s41371-022-00776-9. PMID: 36418425; PMCID: PMC10539169.