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CASE REPORT

Colonic obstruction secondary to accidental ingestion of a dental prosthesis; case report

Obstrucción colónica secundaria a la ingesta accidental de una prótesis dental; reporte de caso

Estefani Andrea Yugsi Mera[1], Pablo Bruno Minda Espín[1], Lucia Mayte Medina Guevara[2], Patricia Jordana Valdivieso Estupiñán[3], José Vicente Fonseca Barragán[4]

[1]Médica General, Universidad Central del Ecuador. Quito. Ecuador.
[2]Médica General, Universidad de Guayaquil. Guayaquil. Ecuador.
[3]Médica Especialista En Medicina Interna, Sociedad de Lucha contra el Cáncer Solca. Guayaquil. Ecuador.
[4]Médico Especialista En Cirugía General, Ministerio De Salud Pública. Guayaquil. Ecuador.

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Corresponding author: José Vicente Fonseca Barragán

ABSTRACT

Introduction: intestinal obstruction is a common medical emergency, usually caused by mechanical processes such as neoplasms or volvulus. However, obstruction secondary to foreign bodies, although rare, can lead to serious complications, especially when the ingested object is a dental prosthesis.
Method: we present the case of a 65-year-old male, with no relevant medical history, who presented with symptoms of abdominal pain, nausea, and absence of bowel movements. Computed tomography revealed an intraluminal foreign body in the sigmoid colon. Given these findings, an exploratory laparotomy with enterotomy and extraction of a dental prosthesis was performed.
Results: accidental ingestion of dental prostheses can cause obstruction, perforation, and even intestinal ischemia. This type of event is more common in elderly adults or patients with cognitive impairments, although it can also occur in healthy individuals. Detection is difficult if the patient does not recall the event and if the prosthesis material is radiolucent. Computed tomography is the most useful diagnostic tool in these cases. Management varies depending on the location, type of prosthesis, and presence of complications, ranging from observation to endoscopy and surgery.
Conclusions: early and multidisciplinary management is essential to avoid major complications. Prevention includes regular dental check-ups and patient education. This case highlights the importance of considering foreign bodies as a cause of obstruction in atypical clinical contexts.

Keywords: Intestinal Obstruction; Foreign Body; Dental Prosthesis; Laparotomy; Colon.

RESUMEN

Introducción: la obstrucción intestinal es una urgencia médica frecuente, generalmente causada por procesos mecánicos como neoplasias o vólvulos. Sin embargo, la obstrucción secundaria a cuerpos extraños, aunque rara, puede conllevar complicaciones graves, especialmente cuando el objeto ingerido es una prótesis dental.
Método: se expone el caso de un varón de 65 años, sin antecedentes relevantes, que acudió con síntomas de dolor abdominal, náuseas y ausencia de deposiciones. La tomografía evidenció un cuerpo extraño intraluminal

en colon sigmoides. Ante estos hallazgos se realizó laparotomía exploratoria con enterotomía y extracción de una prótesis dental.
Resultados: la ingestión accidental de prótesis dentales puede generar obstrucción, perforación e incluso isquemia intestinal. Este tipo de eventos es más frecuente en adultos mayores o en pacientes con alteraciones cognitivas, aunque puede presentarse también en individuos sanos. La detección se dificulta si el paciente no recuerda el evento y si el material de la prótesis es radiolúcido. La tomografía es el estudio más útil en estos casos. El manejo varía según la ubicación, tipo de prótesis y presencia de complicaciones, oscilando entre vigilancia, endoscopia y cirugía.
Conclusiones: el abordaje temprano y multidisciplinario es esencial para evitar complicaciones mayores. La prevención incluye controles odontológicos regulares y educación del paciente. Este caso destaca la importancia de considerar cuerpos extraños como causa de obstrucción en contextos clínicos atípicos.

Palabras clave: Obstrucción Intestinal; Cuerpo Extraño; Prótesis Dental; Laparotomía; Colon.

INTRODUCTION

Significant bowel obstruction is a condition where the typical passage of intestinal contents is interrupted. This obstruction can have various causes, with mechanical causes being the most common. These include colorectal cancer and colonic volvulus, which consists of the twisting of a segment of the colon around its mesentery. The latter is a common benign cause of obstruction and can lead to intestinal lumen occlusion and compromised blood flow, potentially resulting in ischemia, gangrene, and even perforation.[1]

However, other causes of colonic obstruction, although rare, are secondary to a foreign body, in which an object introduced or ingested mechanically obstructs the intestinal lumen. This situation can be caused by objects, such as accidentally ingested foreign bodies or bezoars, accumulating indigestible material.[2]

About 80 % of all ingested foreign bodies pass through the gastrointestinal tract spontaneously, and 20 % of them can impact different levels of the gastrointestinal tract. The most common site of impaction of ingested prostheses is the esophagus; impaction of dental prostheses in the small and large intestines is rare.[3]

Clinically, this form of obstruction may manifest as abdominal pain and other signs of intestinal obstruction. Diagnosis is usually established by imaging studies, with computed tomography being a valuable tool for locating the transition point and characterizing the nature of the blockage.[4]

Dental prostheses impacted in different parts of the gastrointestinal tract can cause various surgical complications, such as perforation, penetration into neighboring organs, bleeding, and obstruction. The most common surgical complication is perforation; bleeding, obstruction, and penetration are rare.[5]

The therapeutic approach depends on the characteristics of the foreign body and the patient's clinical condition. In some cases, surgical intervention is required to remove the object.[6] In others, endoscopic removal may be a viable alternative; however, this option should be carefully considered due to the risk of perforation, particularly if the object is sharp or if there is an associated complication, such as previous perforation.[7]

METHOD

We present the case of a male patient who was admitted to a second-level hospital in the province of Guayas, Ecuador, with a clinical picture suggestive of intestinal obstruction characterized by abdominal pain and difficulty in passing stools.

Given the atypical nature of the case, a detailed analysis of his medical history was performed to evaluate his evolution, and the medical-surgical approach was implemented, as the cause of the obstruction turned out to be unusual: accidental ingestion of a dental prosthesis. This report aims to provide a detailed and accurate description of the case, highlighting the importance of timely diagnosis and appropriate intervention in similar scenarios. The clinical findings, diagnostic tests performed, treatment applied, and clinical considerations are also presented to offer valuable recommendations for managing future cases with comparable characteristics.

CASE REPORT

The patient was a 65-year-old male with no significant medical or surgical history. He presented with a clinical picture that had been evolving for approximately 10 days, characterized by moderate abdominal pain, predominantly in the lower left quadrant, accompanied by episodes of nausea leading to vomiting, abdominal distension, and difficulty in passing stools. He reported that, in the previous days, he had accidentally swallowed the dental prosthesis he used when eating.

Upon initial evaluation by our service, the following clinical findings were noted:
General physical examination

Blood pressure: 100/75 mmHg

Heart rate: 96 beats per minute, rhythmic and without significant alterations.
Respiratory rate: 17 breaths per minute, with no signs of respiratory distress.
Oxygen saturation: 99 % in ambient air. Temperature: 37°C.
Regional physical examination
Oriented in time, space, and person, with a Glasgow score 15/15.
Dry oral mucosa.
Chest: symmetrical, with regular respiratory movements. Cardiopulmonary auscultation without pathological sounds; rhythmic and normophonetic heart sounds, with a vesicular murmur in both lung fields, without aggregates.
Abdomen: no visible surgical scars, soft, distended, painful on deep palpation, diffuse with a predominance in the lower left quadrant. Hydroaerial noises were increased. No signs of peritoneal irritation were found.
Given the patient's clinical context, the following paraclinical tests were requested, and they are reported in table 1.

Table 1. Laboratory test results

Laboratory	**Results**		
Leukocytes:	7,42 x 10^3/UL	Urea	31 mg/dl
Neutrophils	64 %	Creatinine	0,88 mg/dl
Lymphocytes :	25,4 %	TP:	14 U/L
Hb	15 g/dl	TPT:	50 mg/dl
Hcto	45 %	INR:	1,12 mg/dl
Platelets	170 x 10^3/UL	Potassium	3,84 mg/dl

Abdominal X-ray: in the standing position, thickening of the walls of the left colon and sigmoid colon is visible, resembling stacks of coins, and a calcified area near the left iliac crest, figure 1

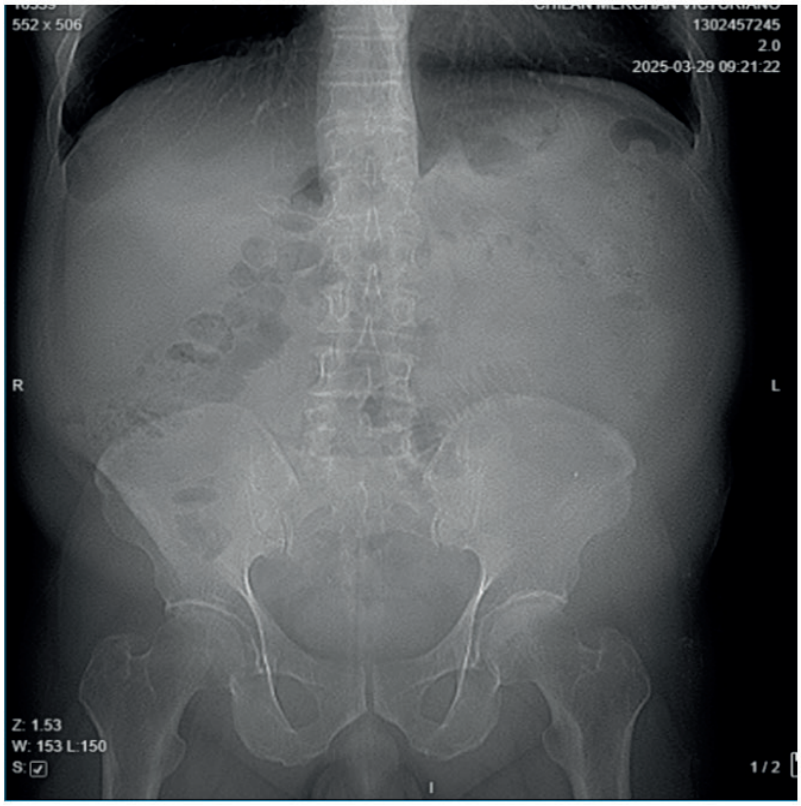

Figure 1. Abdominal X-ray in standing position showing thickened walls in the sigmoid colon.

It was also decided that a simple abdominal and pelvic CT scan should be performed, which revealed thickening of the sigmoid colon walls and an irregular hyperdense intraluminal foreign body obstructing the passage of intestinal contents distally. Axial section figure 2a and coronal section, figure 2b.

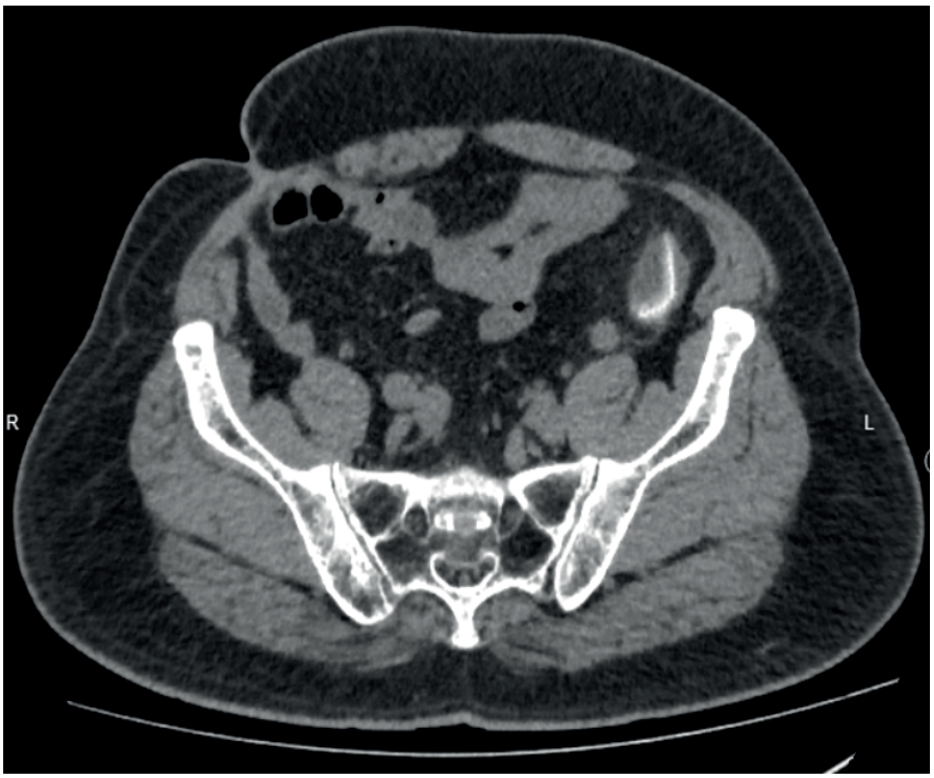

Figure 2a. Axial section: irregular hyperdense intraluminal foreign body obstructing the passage of intestinal contents

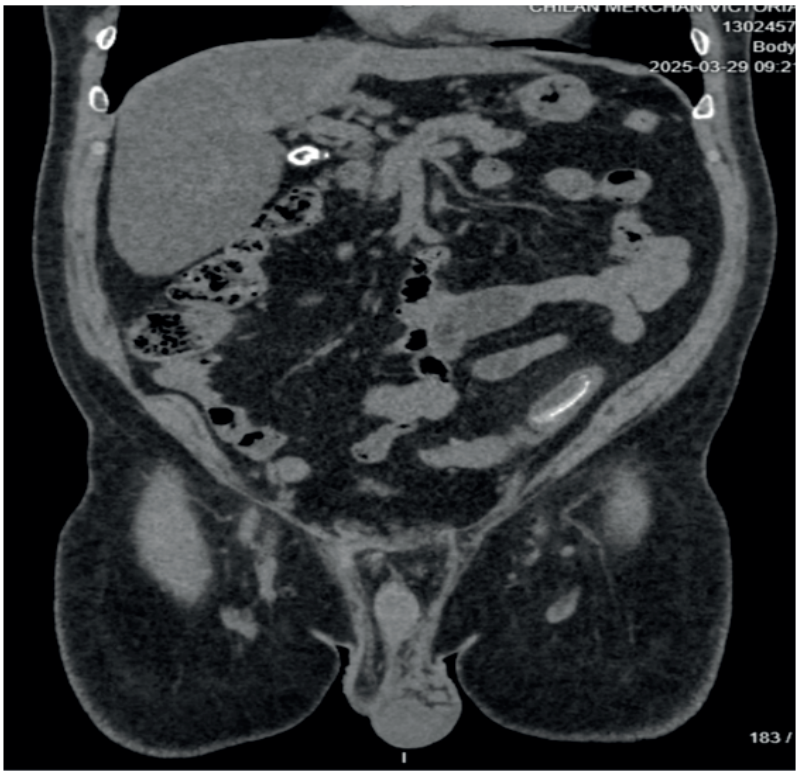

Figure 2b. Coronal section: irregular hyperdense intraluminal foreign body obstructing the passage of intestinal contents

Based on the clinical picture and imaging findings, it was suggested that this was a case of acute obstructive abdomen at the level of the sigmoid colon due to a foreign body (probably the dental prosthesis that had been accidentally ingested in the previous days).

Our surgery department, therefore, prepared for the operating theatre, as exploratory laparotomy was required. Under spinal anesthesia, a rectal examination was first performed, but the foreign body could not be

identified.

We then proceeded with a mid-umbilical incision and planed down to the abdominal cavity, identifying the following findings:

- Abundant adipose tissue in the abdominal wall
- Zhulke II-III adhesions from the omentum to the abdominal wall in the midline and towards the left parietocolic slide.
- Sigmoid colon fixed in the left parietocolic gutter with total intraluminal obstruction by a foreign body (dental prosthesis) preventing the passage of intestinal contents distally, which was found to have thickened walls in this segment [figure 3a], which was then removed with surgical instruments [figure 3b].

With these findings, we proceeded to explore the abdominal cavity, identifying adhesive syndrome, for which adhesiolysis was performed, and a sigmoid colon fixed in the left parietocolic sliding with a foreign body that caused total intraluminal obstruction of the sigmoid colon, preventing passage distally, which had thickened walls in this segment. A longitudinal enterotomy was performed; we entered the intestinal lumen and removed a dental prosthesis from 4 incisors, which was closed transversely in 2 planes (first plane with continuous stitches, second plane with Lembert seroseros stitches with 3.0 vicryl suture). A tubular drain was directed to the rectovesical space and exteriorized through the left flank.

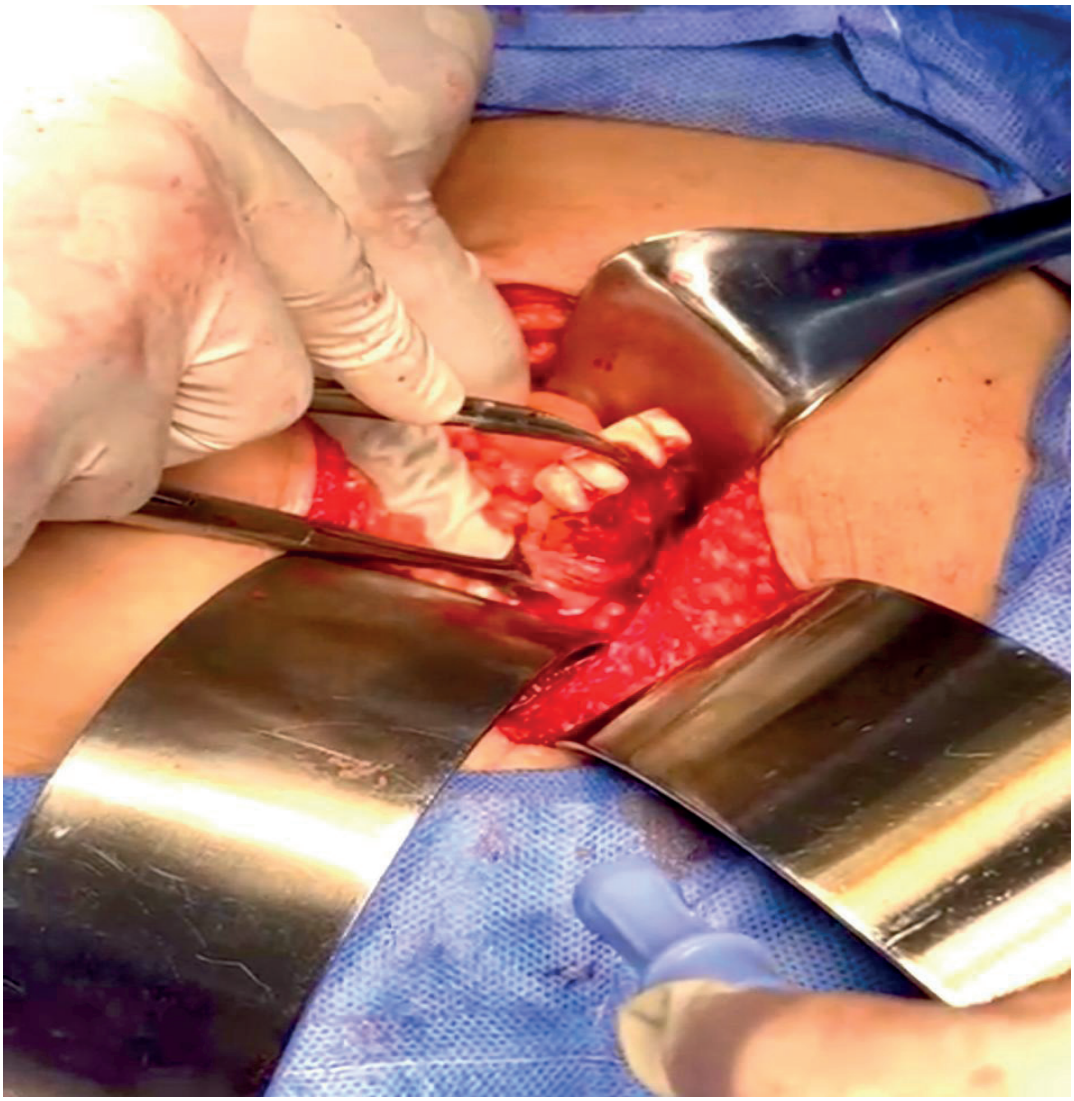

Figure 3a. Foreign body (dental prosthesis) in the sigmoid colon preventing the passage of intestinal contents distally, which was found to have thickened walls.

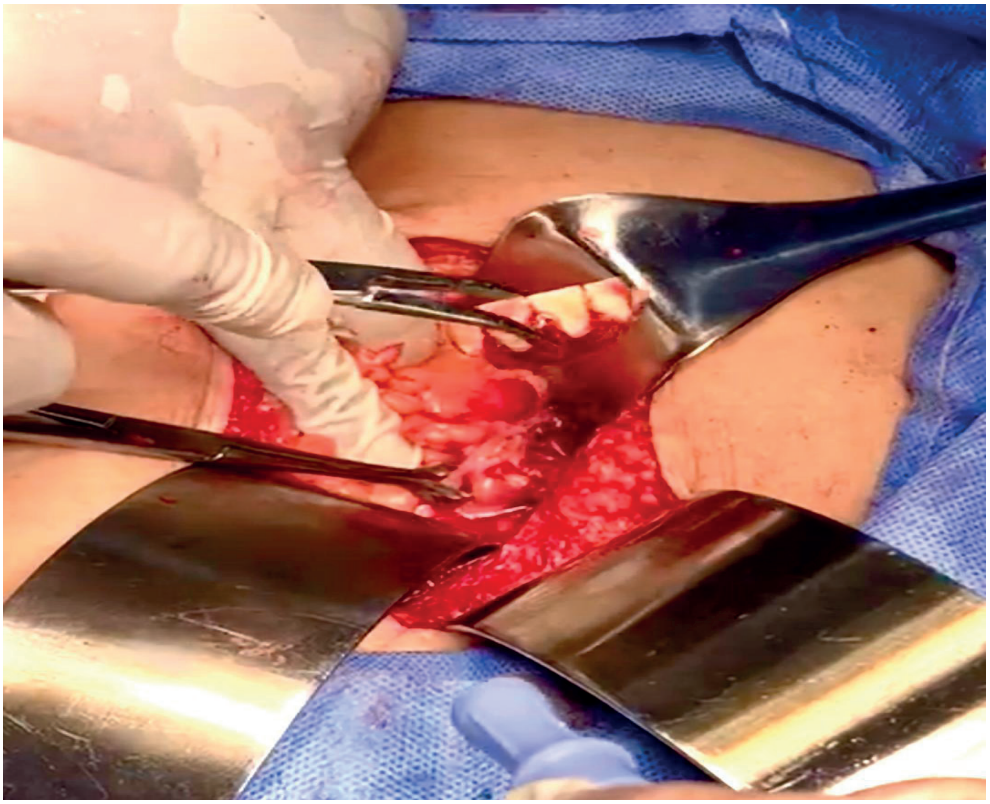

Figure 3b. Extraction of foreign body (dental prosthesis) from the sigmoid colon using surgical instruments.

The patient's postoperative course was uneventful. She was treated with ceftriaxone 1 g intravenously every 12 hours and metronidazole 500 mg every 8 hours. She tolerated oral intake on the second postoperative day, which progressed gradually.

She remained hospitalized for 4 days, completing the antibiotic regimen with adequate progress and tolerating the diet well. She was, therefore, discharged for follow-up outpatient visits with oral antibiotic therapy to complete 10 days.

At the outpatient visit, the patient was assessed and progressing favorably, with no signs of infection at the surgical site. The stitches were removed.

DISCUSSION

Intestinal obstruction caused by ingesting dental materials, such as prostheses or impression components, is rare but clinically significant. The medical literature indicates that individuals with the highest susceptibility are those at greatest risk of accidental swallowing, such as older adults and people with cognitive impairments or neurological disorders that compromise swallowing, control engine, or sensory perception.[8]

The most common symptoms include nausea, vomiting, colicky abdominal pain, and absence of bowel movements or gas. The clinical presentation varies depending on the level and degree of obstruction. In geriatric patients, pain may not be as evident, complicating diagnosis. In cases of partial obstruction, watery diarrhea may be observed, masking the true etiology of the condition.[9]

During clinical evaluation, abdominal distension, tympanism, and increased hydroaerial noises are frequently identified, suggesting an obstruction. Imaging studies, such as plain abdominal X-rays or computed tomography, are essential to confirm the diagnosis and guide treatment.[10]

Identifying the ingestion of a prosthesis requires a detailed medical history, although this may be limited in people with cognitive impairment, who may not remember or adequately communicate the event. In this context, mental status assessment is key to detecting possible self-injurious behavior or cognitive deficits. Oral examination confirms the device's absence and provides information on its design, which is crucial in patients with neuropsychiatric disorders or preoperative settings.[10]

Assessing the physical characteristics of the ingested prosthesis—size, shape, type (fixed or removable, partial or total), and the materials involved—is essential to anticipate the possible site of obstruction, assess the associated risks, and define the best diagnostic and therapeutic approach. Horseshoe-shaped prostheses, for example, can rotate and lodge in areas such as the hypopharynx or esophagus. Although removable prostheses are most commonly involved, unstable fixed prostheses pose a risk, even during everyday activities such as

eating.[11]

These prostheses' most commonly used materials include acrylic resins, porcelain, and various metals (gold, cobalt-chromium alloys, nickel-chromium, and zirconium). When made with radiolucent components such as polymethyl methacrylate or porcelain, plain X-rays may not be sufficient to detect them. However, indirect signs such as trapped air or soft tissue thickening may suggest their location. Computed tomography is superior for identifying this type of foreign body, while magnetic resonance imaging, although useful, is not always available in emergency settings.[12]

The development of radiopaque plastic materials has been limited because metallic or glass additives weaken the prosthesis, increasing the risk of fracture and ingestion of fragments. In contrast, metallic components allow better visualization of images and help detect complications such as subcutaneous emphysema, pneumothorax, pneumomediastinum, intestinal distension, or pneumoperitoneum.[12]

The treatment of dental prosthesis ingestion is based on three strategies: clinical monitoring, endoscopic removal, and surgical intervention. Observation is feasible if the object is small, has no sharp edges, and has already passed the Treitz ligament. Endoscopy is the preferred method when there are no signs of perforation or infection, and laryngoscopy or hypopharyngoscopy may be used if the foreign body is located in the hypopharynx. In case of serious complications such as abscesses or perforation, surgery via a cervical approach is used.[13]

Prostheses lodged in the esophagus can be removed by oesophagoscopy. However, if the procedure fails or there are complications, more invasive surgery, such as oesophagotomy or even oesophagectomy, may be necessary. The choice of treatment for bodies located in the small intestine or colon depends on their characteristics and whether there are complications. In general, endoscopy is the method of choice in simple cases involving the upper gastrointestinal tract, and surgery is reserved for cases with complications. Expectant management is usually sufficient when the lower segment is involved and there are no warning signs.[13]

The most serious complications, especially in elderly patients, are ischemia and intestinal perforation, resulting from sustained colon dilation that can reach critical diameters, which considerably increases mortality.[14]

Finally, preventing these incidents requires multidisciplinary collaboration between dentists, emergency physicians, anaesthesiologists, and psychiatrists. These professionals should identify patients at risk, encourage clinical follow-up of prostheses, and promote early intervention at signs of loosening or displacement, especially during the first month after identification.[15]

CONCLUSIONS

Accidental ingestion of dental prostheses, although rare, is a significant cause of intestinal obstruction, especially in vulnerable populations such as older adults and patients with cognitive impairment or neurological disorders. Timely recognition of this condition requires a high index of clinical suspicion, especially in individuals who cannot provide a reliable history. Detailed clinical evaluation, supported by appropriate imaging studies, is essential for establishing the diagnosis and planning treatment. The physical characteristics of the prosthesis and its location determine the most suitable therapeutic approach, which can range from observation to surgical intervention.

Complications, such as ischemia or intestinal perforation, can be severe and life-threatening, so rapid and effective intervention is essential. Finally, prevention should be a priority through regular dental check-ups and early identification of risk factors as part of a multidisciplinary strategy involving mental health professionals, anaesthesiologists, dentists, and general practitioners.

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CONFLICT OF INTEREST

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AUTHOR CONTRIBUTION

Conceptualisation: José Fonseca.
Data curation: José Fonseca, Estefani Yugsi, Lucia Medina.
Formal analysis: José Fonseca, Pablo Minda, Lucia Medina.
Research: José Fonseca, Pablo Minda.
Methodology: José Fonseca, Estefani Yugsi.
Project management: José Fonseca.
Resources: José Fonseca, Estefani Yugsi, Lucia Medina.
Software: José Fonseca, Lucia Medina.
Supervision: José Fonseca, Patricia Valdivieso.
Validation: José Fonseca, Patricia Valdivieso.
Visualisation: José Fonseca, Patricia Valdivieso.
Drafting – original draft: Lucia Medina, Estefani Yugsi, Patricia Valdivieso, Pablo Minda.
Drafting – review and editing: José Fonseca.