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Hamman's **Syndrome** *in a Pediatric Patient: A Case Report*

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Summary

This report describes a rare case of spontaneous pneumomediastinum in a pediatric patient, triggered by an isolated episode of wheezing. Although the condition is uncommon in this age group, it demonstrates that even subtle respiratory manifestations can have significant repercussions, reinforcing the need for detailed clinical evaluation and careful monitoring of the patient's history for early identification of the condition and definition of the most appropriate course of action.
During the investigation, imaging studies were essential to characterize the extent of extraluminal air. Computed tomography revealed gas present in the vertebral canal, in the superficial and deep interfacial planes, and in the retroperitoneum, involving abdominal organs such as the kidney, stomach, and adrenal gland. These findings confirm that, even in cases with mild symptoms, pneumomediastinum can spread extensively throughout the tissues, making complete radiological examinations indispensable to guide clinical management and prevent possible complications. The treatment adopted was conservative, based on clinical observation, oxygen therapy, and analgesia, a course of action recommended in the literature for stable patients. Close follow-up, combined with detailed radiological evaluation, allowed monitoring the resolution of the extraluminal air and ensured patient safety without the need for invasive interventions. This case highlights the importance of integrating clinical evaluation, imaging studies, and conservative management, demonstrating that, even in rare situations with extensive air dissemination, complete recovery is possible in children with spontaneous pneumomediastinum. Furthermore, it highlights the importance of early diagnosis and continuous monitoring to prevent complications and guide safe clinical decisions.

Keywords: Hamman's Syndrome; Pediatrics; Spontaneous Pneumomediastinum.

Abstract

This report describes a rare case of spontaneous pneumomediastinum in a pediatric patient, triggered by an isolated episode of wheezing. Although the condition is uncommon in this age group, it demonstrates that even subtle respiratory manifestations can have significant repercussions, reinforcing the need for detailed clinical evaluation and careful monitoring of the patient's history for early identification of the condition and definition of the most appropriate course of action. During the investigation, imaging studies were essential to characterize the extent of extraluminal air.
Computed tomography revealed gas present in the vertebral canal, in the superficial and deep interfacial planes, and in the retroperitoneum, involving abdominal organs such as the kidney, stomach, and adrenal gland. These findings confirm that, even in cases with mild symptoms, pneumomediastinum can spread widely throughout the tissues, making complete radiological examinations indispensable to guide clinical management and prevent possible complications. The treatment adopted was conservative, based on clinical observation, oxygen therapy, and analgesia, a course of action recommended in the literature for stable patients. Close monitoring, coupled with detailed radiological evaluation, allowed for monitoring the resolution of extraluminal air and ensuring patient safety without the need for invasive interventions. This case highlights the importance of integrating clinical assessment, imaging studies, and conservative management, demonstrating that even in rare situations with extensive air dissemination, complete recovery is possible in children

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with spontaneous pneumomediastinum. Furthermore, it underscores the relevance of early diagnosis and continuous surveillance to prevent complications and guide safe clinical decisions.
Keywords: Hamman's Syndrome; Pediatrics; Spontaneous Pneumomediastinum.

1. Introduction

Hamman syndrome is a rare condition characterized by the presence of free air in the mediastinum, anatomical space that houses vital structures such as the heart, trachea, and major blood vessels. (Queiroz et al., 2023). This condition can occur secondarily, as a consequence of traumas or medical procedures, or in a primary form, when it arises spontaneously, being then termed Spontaneous Pneumomediastinum. The primary form is even more uncommon in

This phenomenon affects the pediatric population and is associated with changes in alveolar pressure, which can lead to rupture of the... alveoli and the extravasation of air into the mediastinum and pulmonary hilum, increasing the pressure intrathoracic and can cause respiratory complications (Rosinhas; Soares; Pereira, 2018).

Hamman syndrome has a low prevalence, being considered rare and often... without identifiable cause. It occurs predominantly in young males, while in Female children are even less frequent (Ferreira; Castro, 2024). This difference in The incidence suggests biological and physiological factors that may predispose certain groups to condition. Because it is a rare event, especially in pediatrics, its early detection depends careful clinical attention and knowledge of characteristic signs and symptoms (Albernaz et al., 2022).

The incidence in emergency services can vary widely, with reports suggesting a An occurrence of approximately 1 in 800 to 1 in 42,000 patients treated, which may reflect both The rarity stems from the underreporting of mild or poorly recognized cases. Despite being more frequently described... in young adult males, especially those with specific physical characteristics, Spontaneous pneumomediastinum also occurs in the pediatric population and deserves clinical attention in contexts of chest pain or acute dyspnea.

Among the factors that can trigger the syndrome are situations that increase blood pressure. Intrathoracic, such as asthma attacks, intense physical exertion, persistent vomiting, and in some cases, labor (Huang, 2022). These events cause an overload on the pulmonary alveoli, favoring alveolar rupture and the passage of air into the mediastinum. Therefore, the identification of Predisposing factors in the patient's clinical history are essential to raise diagnostic suspicion. (Pereira et al., 2022).

Symptoms of this condition include chest pain, cough, shortness of breath, neck pain, and difficulty breathing. to swallow. In addition, during the physical examination, subcutaneous crepitations may be observed in regions of the face, neck, and chest, indicating the leakage of air into the subcutaneous tissues. These

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findings are important for the clinical recognition of the condition, although they are not always present in all cases (Orso et al., 2025).

The use of imaging tests is important for diagnostic confirmation. X-rays of A chest X-ray can help detect mediastinal air, but computed tomography is considered... the test of choice, as it offers greater sensitivity and allows for a detailed assessment of Extension of pneumomediastinum. The appropriate choice of diagnostic method contributes to management. clinically safe and for the prevention of more serious complications (Mattar et al., 2021).

Regarding treatment, the approach is generally conservative, especially in pediatric patients, considering that the syndrome tends to be self-limiting and has a normal course of treatment. favorable. Management involves clinical monitoring, respiratory support when necessary, and guidance regarding limiting activities that may increase intrathoracic pressure. This This approach allows the condition to resolve naturally, avoiding unnecessary interventions and reducing additional risks to the patient (Silva, 2022).

The clinical case presented in this paper describes a previously healthy patient, diagnosed with Hamman syndrome, detailing the initial presentation and treatment. Clinical care will be provided up to the diagnosis, the conservative management adopted, and subsequent follow-up. This will include... The initial signs and symptoms, the diagnostic methods used, and the importance of the tests were discussed. imaging and the course of treatment. In addition, a review of relevant literature will be conducted on this condition.

Therefore, the aim is to describe in detail a rare case of Hamman syndrome. in a pediatric patient with a challenging and unexpected diagnosis, in order to empower the professional. health professionals are needed to identify less common pathologies and make a quick diagnosis. necessary.

2. Case Report

This is an observational study, of the case report type, based on secondary data. obtained from electronic medical records at the Taguatinga Regional Hospital (HRT), without direct intervention. or prospective follow-up of the patient. The project was previously submitted to the Research Ethics Committee of the Foundation for Teaching and Research in Health Sciences (CEP/FEPECS), being Approved according to opinion no. 8.060.605 in accordance with the ethical principles of the Resolution. CNS No. 466/2012. Free and informed consent was obtained from the legal guardian during outpatient care, after a detailed explanation of the study objectives and procedures. involved.

A six-year-old female patient, previously healthy, was admitted to the ward.

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pediatric patient at HRT on 03/05/2023, after referral by SAMU from a basic health unit, due to respiratory discomfort associated with the first episode of wheezing. According to reports Two days before being admitted to the hospital, the child began experiencing cough, nasal congestion, and fever. measured, evolving on the day before admission with worsening of respiratory symptoms. In the unit As a basic treatment, the patient received rescue inhalation with salbutamol (five puffs) and hydrocortisone corticosteroid. 100 mg of dipyrone for fever control.

Upon admission to HRT, the patient presented with mild respiratory distress. Retraction of the suprasternal notch, slight subcostal and intercostal retractions, respiratory rate of 32 breaths. per minute, and oxygen saturation of 96% with nasal cannula oxygen therapy. The physical examination The examination revealed the presence of subcutaneous emphysema throughout the left hemithorax. Oral diet accepted . adequate and physiological elimination preserved. Absence of previous comorbidities, allergies, use of continuous medication or previous hospitalizations, as well as the absence of previous episodes of hissing.

Family history revealed that both parents had a history of seizures. Asthma in childhood. A two-year-old brother had already experienced four episodes of wheezing. while an eight-year-old sister was healthy, with no reported respiratory events. There were none. Other relevant family history was observed at the time of admission. This data was considered. important for assessing the genetic risk of respiratory diseases in children.

During her initial admission to the pediatric emergency room at HRT, the patient was kept in Oxygen therapy via nasal cannula, using salbutamol inhalation (eight puffs every 2 hours, (later adjusted to every 4 hours) and oral corticosteroid prednisolone 1 mg/kg/day. The oral diet The treatment was maintained, and the patient's general condition remained good, with preserved activity and reactivity. Afebrile since May 3rd, the patient maintained normal bowel movements and showed no signs of discomfort. digestive or urinary.

Laboratory tests performed on 04/05/2023 showed a hemoglobin level of 12.7 g/dL. hematocrit 37.4%, leukocytes 13,800/mm³ (segmented 79.1%, lymphocytes 13.7%) and platelets 264,000/mm³. No significant changes suggesting an infectious process were identified. Severe systemic infection. Viral panel and rapid test for COVID-19 were negative. These Laboratory findings were considered consistent with an acute respiratory condition without hematological complications.

Chest and abdominal X-ray performed on 03/05/2023 showed slightly constricted lungs. Hyperinflated sinuses, without effusions, opacities or consolidations, with free sinuses. Subcutaneous emphysema. Significant radiographic findings were observed bilaterally in the thoracic region. consistent with the clinical picture of acute bronchospasm and suggested the need for Monitoring the extent of subcutaneous emphysema.

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Due to the initial severity of the condition and the presence of subcutaneous emphysema, a request was made.
Computed tomography (CT) scan of the chest, neck, and abdomen. Like the unit's CT scanner.
The hospital was out of service, so the patient was transferred to another hospital unit.
The examination was performed on an urgent basis, without the administration of contrast. The CT scan was performed in
05/05/2023 evidenced pneumomediastinum with emphysema in the superficial and deep planes of the
cervical region and anterior thoracic wall, in addition to slight pneumorrhache in the cervical spine and
Thoracic. Within the clinical context, the presentation was consistent with Hamman's syndrome.

During her stay in the ward, the patient remained awake, active, and communicative.
He was breathing spontaneously in ambient air, with no respiratory effort, and was murmuring.
Bilateral vesicular fluid was present and without adventitious sounds. Subcutaneous emphysema remained.
Palpable in the chest and abdomen, but without visible expansion. Vital signs stable. Oral diet.
It continued to be well tolerated, and physiological elimination was maintained. No nasal secretions were observed.
Significant episodes of runny nose, gastrointestinal or urinary changes. The general condition presented
Progressive improvement since admission.

Clinical monitoring included gradual weaning off oxygen therapy and maintenance of
Inhalations with salbutamol and oral prednisolone. During the observation period, the patient maintained-
The patient is afebrile, without signs of significant respiratory distress, and tolerating an adequate oral diet. There were no...
Additional complications arose, and the evolution of the subcutaneous emphysema showed progressive resolution.

The therapeutic approach adopted consisted of conservative management, including monitoring.
Rigorous clinical care, maintenance of oral hydration, symptomatic analgesia when necessary, and instructions.
Regarding warning signs. A follow-up appointment was recommended for clinical, radiographic, and other reassessments.
Additional image after hospital discharge.

The follow-up appointment took place on May 15, 2023, when the patient was asymptomatic, with an examination...
Physical examination was unremarkable and chest x-ray was normal. The subcutaneous emphysema had regressed.
Completely. Medical discharge was confirmed, with instructions regarding warning signs and use of
Previously prescribed medications have been discontinued and outpatient follow-up is required.

This case illustrates an atypical presentation of spontaneous pneumomediastinum and syndrome of
Hamman in a previously healthy pediatric patient, highlighting the importance of clinical evaluation.
Detailed information and imaging exams. The exams are attached below in sequence.
Computed tomography (CT) scan.

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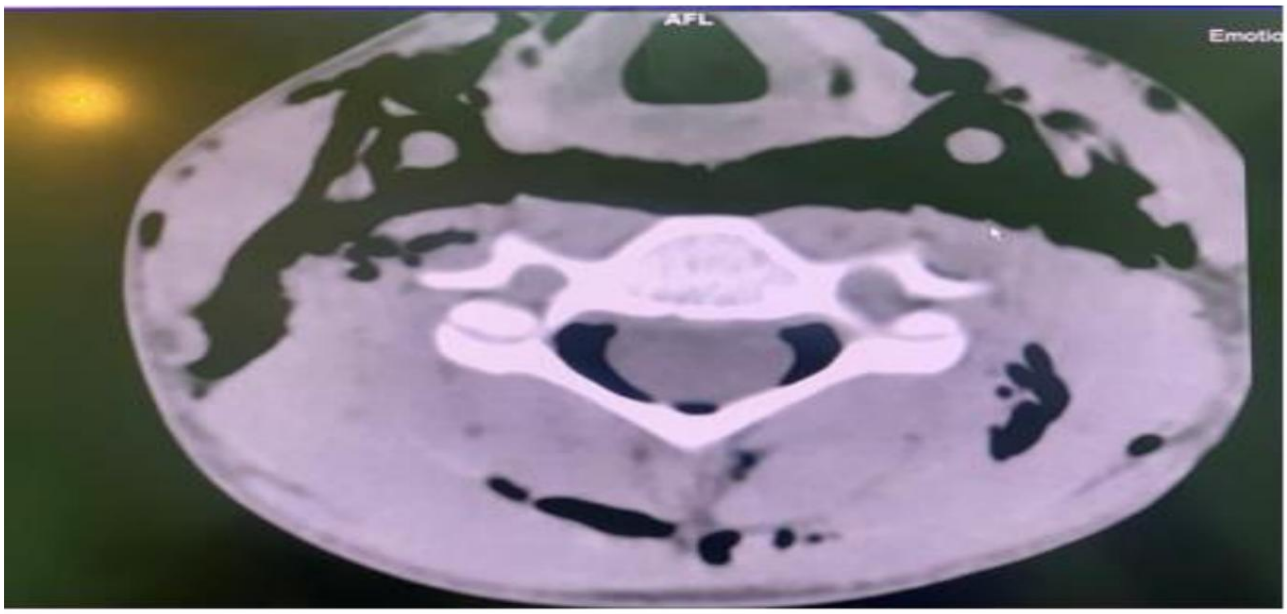
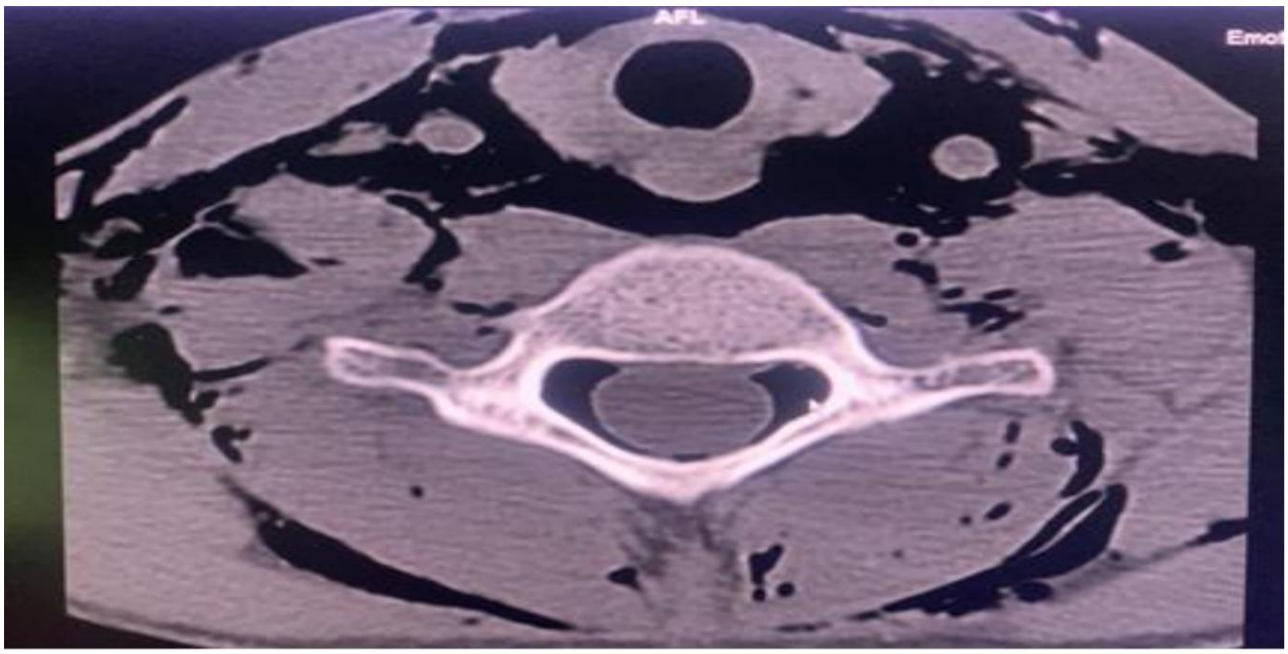
Figure 1: Computed tomography - Axial section of the vertebral canal



Source: Research data, 2026.

Figure 2: Computed tomography - Axial section of the vertebral canal



Source: Research data, 2026.

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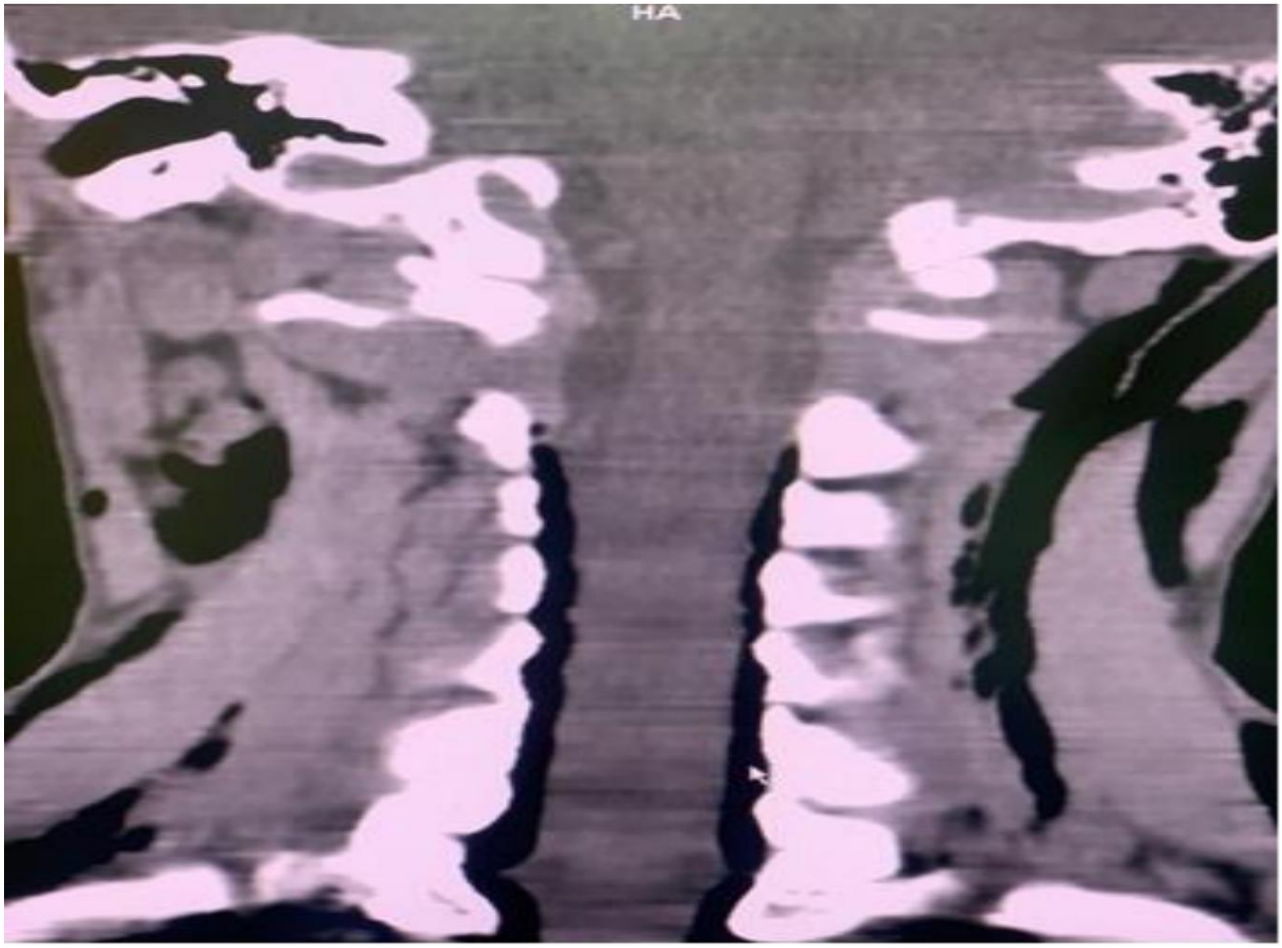
Figure 3: Computed tomography - Coronal section of the vertebral canal



Source: Research data, 2026.

Computed tomography (CT) scans of the axial and coronal sections of the spine showed gas in vertebral canal and in the superficial and deep fatty and interfacial planes, characterizing Pneumomediastinum. This refers to the same location analyzed in different sections, highlighting the extent. the presence of air in adjacent tissues. The finding highlights the abnormal spread of air outside the respiratory tract. These signs are consistent with Hamman syndrome in a pediatric patient.

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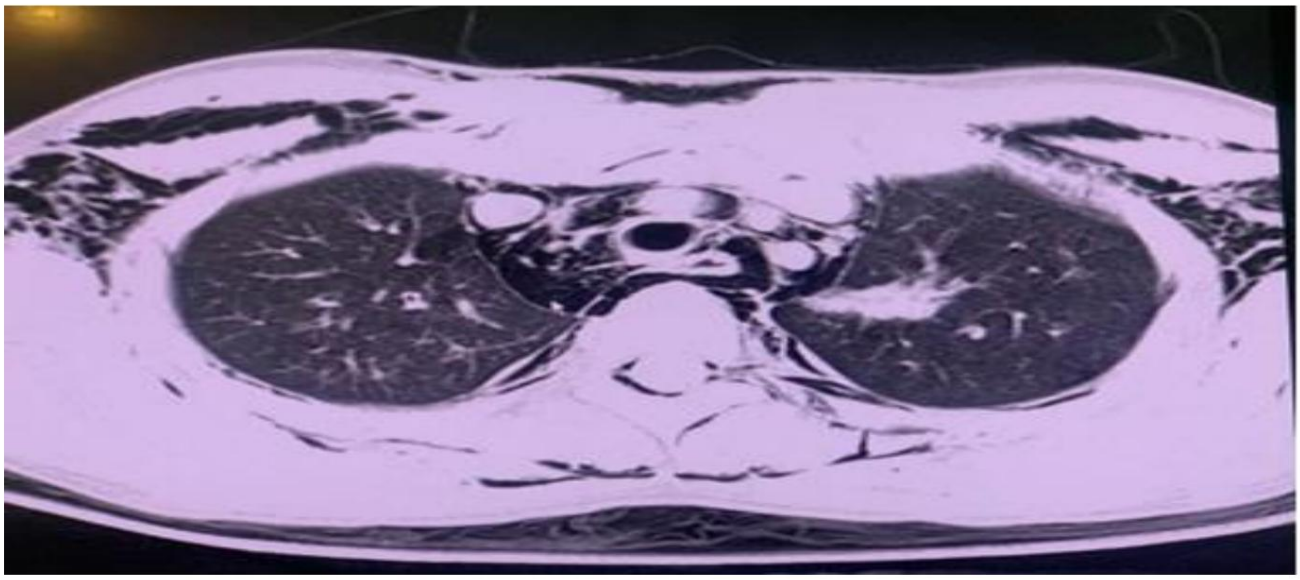
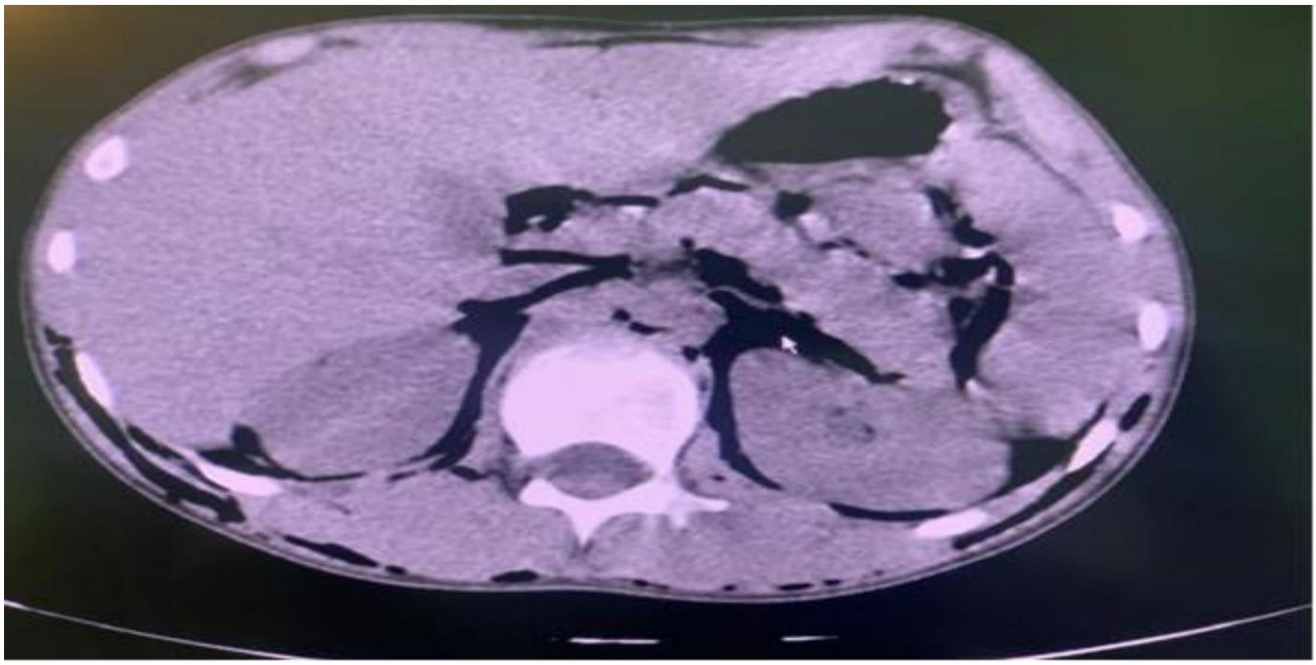
Figure 4: Computed tomography - Axial section of the thoracic region



Source: Research data, 2026.

The chest computed tomography scan, axial view, revealed the presence of Gas distributed in the mediastinum, extending to the vertebral canal, as well as to the fatty planes and intermuscular muscles in a diffuse manner.

Figure 5: Computed tomography - Axial section of the intra-abdominal region



Source: Research data, 2026.

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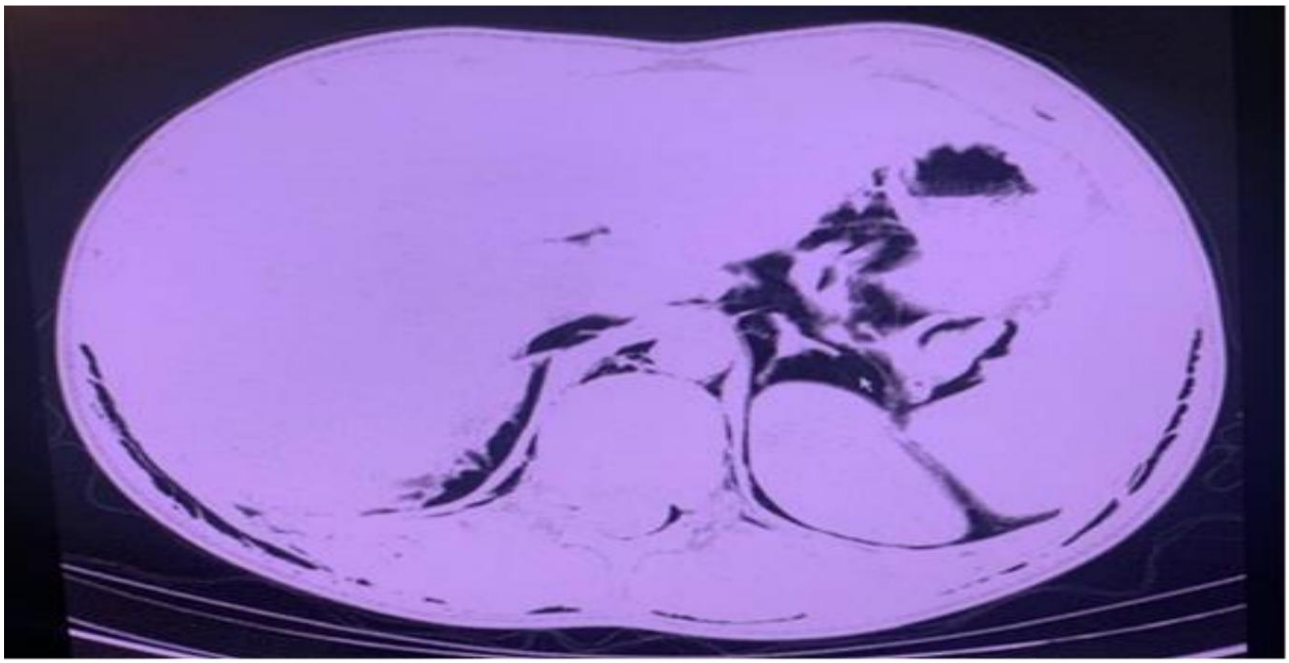
Figure 6: Computed tomography - Axial section of the intra-abdominal region



Source: Research data, 2026.

In the axial CT scan of the intra-abdominal region, diffuse gas was observed in the abdomen. and retroperitoneum, involving structures such as the kidney, stomach, and adrenal gland. This finding This indicates an abnormal presence of air in multiple abdominal compartments, suggesting pneumoperitoneum. and diffuse pneumoretroperitoneum, with potential clinical severity. Given this, the results Radiological tests confirm the presence of air outside the normal airways and reinforce the need clinical and radiological monitoring of the patient.

3. Discussion

3.1 Epidemiology and clinical presentation

Spontaneous pneumomediastinum usually occurs when there is sudden respiratory distress. Intense cough, vomiting, or, in some cases, even mild episodes of wheezing (Sousa *et al.,* 2024). In In the case we reported, the patient presented only one isolated episode of wheezing, showing that Even subtle respiratory symptoms can be related to the appearance of air in the mediastinum.

To identify and assess the extent of pneumomediastinum, imaging tests are used. essential. Computed tomography allows the detection of air in places where it can pass through. unnoticed in simple radiographs, such as in the vertebral canal and fatty planes and

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interfacial, both superficial and deep (Mauro *et al.,* 2021). This information is from
According to reports in pediatric literature, air tends to spread through tissues.
adjacent to the mediastinum.

In this case, the presence of air in abdominal regions was also observed and
retroperitoneal, involving structures such as the kidney, stomach, and adrenal gland. Although
While this extent is uncommon, it has been described in other cases of extensive pneumomediastinum.
(Montenegro *et al.,* 2025). This shows that air can move through spaces of least resistance.
in the tissues, reaching neighboring compartments, which reinforces the importance of detailed examinations.
to properly assess the severity of the condition.

In most pediatric patients, Hamman syndrome presents with symptoms
Mild symptoms, such as slight chest pain, subcutaneous crepitus, or wheezing, tend to resolve on their own.
However, when air spreads to unusual regions, such as the retroperitoneum and organs...
In cases of abdominal injuries, rigorous monitoring becomes necessary (Albernaz *et al.,* 2022). The literature
points out that, even in these cases, conservative treatment, with observation, oxygen therapy and
Analgesia is usually sufficient to resolve the condition.

This report demonstrates the importance of a thorough clinical assessment, even in the presence of symptoms.
seemingly mild. A detailed history and careful observation can guide the need for...
complementary exams and preventing future complications. Furthermore, integration among the team is crucial.
Medical and radiological expertise ensures accurate image interpretation and safe patient management.
(Queiroz *et al.,* 2023).

Radiological monitoring is essential, especially when air spreads through
different compartments. Computed tomography provides detailed information about the
extent of the pneumomediastinum, allowing professionals to plan the appropriate course of action and
Identify signs of complications early, such as compression of structures or instability.
clinic (Mota; Martins; Soria, 2020).

3.2 Radiological findings and extent of pneumomediastinum

Computed tomography is currently the examination of choice for evaluating the presence and
The extension of air outside the normal respiratory tract. It allows for precise identification of the location.
of the gas and its dispersion through the tissues, which is essential for planning the clinical follow-up of
patient (Bessa et al., 2023). In children, this examination is particularly important because signs
Initial radiographic findings can be subtle and easily underestimated (Bonfleur, 2021).

In the axial and coronal sections of the patient in question, gas was observed in the canal.
vertebral, which demonstrates that air was able to spread beyond the mediastinum to nearby regions.

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to the spine. This finding, although less common, has been described in pediatric cases and indicates that the air It follows pathways of least resistance in the tissues (Mauro *et al.,* 2021).

In addition to the vertebral canal, gas was also present in the fatty and interfacial planes. both superficial and deep. This distribution shows that pneumomediastinum is not It is limited to the mediastinum, but can extend into the connective tissue spaces, following along with the surrounding tissues. anatomical structures around it (Pereira *et al.,* 2020).

Another important point was the identification of gas in multiple compartments, including abdominal and retroperitoneal regions (Mauro *et al.,* 2021). Although this extension is rare, cases Similar cases have been reported in the literature, especially in situations of extensive pneumomediastinum. The presence of air in different regions reinforces the need for close clinical observation, even that the patient presents mild symptoms (Wajima *et al.,* 2023).

Image analysis also allows differentiation between pneumomediastinum and other conditions. such as isolated subcutaneous emphysema or post-traumatic complications. In pediatric cases, this distinction It is essential because it can prevent unnecessary interventions and guide conservative management in a way that... safe (Barbosa *et al.,* 2022).

The spread of gas to regions such as the retroperitoneum and abdominal organs demonstrates that Air tends to follow paths of least resistance, taking advantage of anatomical spaces that connect the mediastinum to neighboring compartments. This behavior explains why, even in episodes Mild wheezing or coughing may result in extensive pneumomediastinum in children (Guerra; Silva, 2020).

3.3 Clinical Management

The management of spontaneous pneumomediastinum in children is mostly conservative, or That is, based on clinical observation, respiratory support, and symptom control, since the evolution It is usually benign and most patients recover without aggressive interventions (Cotrim; Emidio, 2024).

This is because the condition, although rare, usually presents with clinical signs. Mild conditions, such as chest pain, subcutaneous emphysema, or moderate dyspnea, that do not require procedures. Invasive procedures are performed immediately. Typically, the decision to hospitalize the patient or not depends on... Clinical stability. In stable pediatric patients, many authors acknowledge that hospitalization It may not always be essential, and outpatient management with guidance and observation is possible. carefully (Montenegro *et al.,* 2025).

Oxygen therapy is one of the cornerstones of conservative treatment, as it provides Oxygen in adequate concentrations accelerates the absorption of air present in extraluminal tissues and

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This can promote faster resolution of the pneumomediastinum. In addition, analgesia is recommended.
for the relief of chest pain associated with the condition, facilitating patient comfort and helping to
to reduce respiratory stress, which can perpetuate the entry of air into the tissues (Montenegro *et al.,*
2025).

The literature also emphasizes that additional imaging exams, such as computed tomography (CT) scans, may be necessary.
Computed tomography (CT) scans are selectively indicated based on clinical presentation.
In stable patients with clear diagnostic radiographs, CT scans may not significantly alter the diagnosis.
Initial management. However, when there is extensive airborne dissemination to regions such as the retroperitoneum.
or adjacent tissues, as occurred in the case presented, rigorous clinical monitoring makes-
if essential, as extending the airway may be associated with a higher risk of complications, even if
rare (Wajima *et al.,* 2023).

Retrospective studies in pediatric centers confirm that virtually all cases of
Primary spontaneous pneumomediastinum without comorbidities or events.
Severe triggers usually respond well to conservative management, without the need for interventions.
additional symptoms or significant recurrence. Therefore, the approach should always be individualized.
considering the clinical history, radiological findings, and response to initial support, instead of
follow a strict protocol for all cases (Albernaz *et al.,* 2022).

The need for invasive interventions, such as drainage or surgery, is very rare in
Spontaneous pneumomediastinum is usually reserved for situations secondary to trauma.
esophageal perforation or associated complications that do not constitute the typical spontaneous presentation
in children (Pereira *et al.,* 2020). Even so, close clinical monitoring and repeat testing are necessary.
Controlled imaging studies are important to monitor the resolution of extraluminal air and
to ensure that there is no unfavorable evolution, especially in cases with widespread dissemination,
as reported (Pereira *et al.,* 2020).

Therefore, despite spontaneous pneumomediastinum and its extension in multiple planes
Although tissue problems may seem alarming, well-monitored conservative management is usually effective and
safe in most pediatric cases, reinforcing the importance of continuous clinical evaluation and...
Integration of radiological findings with the patient's history (Wajima *et al.,* 2023).

4. Conclusion

This case shows that spontaneous pneumomediastinum in children, although rare, can occur.
appearing even after a mild episode of wheezing, demonstrating that subtle respiratory signs
These can have significant repercussions. Therefore, a detailed clinical evaluation and careful analysis are necessary.
The patient's medical history is essential for early identification of the condition and determining the appropriate course of action.

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most suitable.

Imaging tests, especially computed tomography (CT) scans, were fundamental.
to assess the extent of air in the tissues, revealing gas in the vertebral canal, interfacial planes and
in the retroperitoneum, including abdominal organs. These findings show that, even
When symptoms are mild, pneumomediastinum can spread widely, reinforcing the
The need for comprehensive radiological examinations to guide management and prevent complications.

Conservative management, based on clinical observation, oxygen therapy, and analgesia, has shown-
if safe and effective, in accordance with the literature. Thus, the case demonstrates that, with
With proper clinical and radiological follow-up, it is possible to ensure a complete recovery of the patient.
patient without invasive interventions, highlighting the importance of integration between medical evaluation
and imaging studies for the safe management of spontaneous pneumomediastinum in children.

References

ALBERNAZ, Pedro Cardoso Siqueira *et al.* Hamman Syndrome: a case report. **Scientific Journal of the Faculty of Medicine of Campos,** v. 17, n. 2, p. 56-59, 2022.

BARBOSA, Paula Nicole Vieira Pinto *et al.* Percutaneous drainage of hypertensive pneumomediastinum guided by computed tomography. **Radiologia Brasileira,** v. 55, p. 62-63, 2022.

BESSA, Elizabeth Jauhar Cardoso *et al.* Evaluation of heterogeneity in ventilation distribution and its correlation with traditional pulmonary function tests and computed tomography in patients with rheumatoid arthritis. **Uerj,** 2023.

BONFLEUR, Débora Regina; REAL, Jéssica Villa; FILIPOV, Danielle. Study of the feasibility of optimizing pediatric protocols in cranial computed tomography examinations.
Brazilian Journal of Medical Physics, v. 15, p. 616-616, 2021.

FERREIRA, Fábio; CASTRO, Miguel. Hamman Syndrome: A Case Report of Interlobar Pneumothorax, Pneumopericardium, and Pneumorrhachis. **Cureus,** v. 16, n. 11, 2024.

GUERRA, Sónia; SILVA, João Paulo. A Severe Case of Pneumomediastinum. **Acta Radiológica Portuguesa,** v. 32, n. 3, p. 29-30, 2020.

HUANG, Chienhsiu. Clinical characteristic and outcome of spontaneous pneumomediastinum. **Tungs' Medical Journal,** vol. 16, no. 2, p. 61-65, 2022.

MATTAR, Beatriz Alvarez *et al.* Spontaneous pneumomediastinum due to diabetic ketoacidosis. **Revista Médica do Paraná,** v. 79, n. 2, p. 1677-1677, 2021.

MAURO, Alicia Arioli *et al.* Radiological aspects of a spontaneous pneumomediastinum associated

Year VI, v.1 2026 | Submission: 01/24/2026 | Accepted: 01/26/2026 | Publication: 01/28/2026

Regarding infection by Sars-CoV2: a case report. **Interdisciplinary Journal of Health and Education,** v. 2, n. 2, 2021.

MONTENEGRO, Leonardo *et al.* Pneumomediastinum in an asthmatic patient, relevance of early diagnosis: case report. **BRASILEIRA DE MEDICINA DE EMERGÊNCIA ÿÿÿÿÿÿÿÿÿÿ: GN1 Sistemas e Publicacoes Ltd.,** 2025.

MOTA, Laís Marques; MARTINS, Luiz Cláudio Behrmann; SORIA, Jean Pierre Canudas. Hamman syndrome with spontaneous pneumorrhage – a case report. **CASE REPORTS,** v. 64, n. 2, p. 267-269, 2020.

ORSO, Robson Silva Araújo *et al.* Subcutaneous Emphysema in the Cervical Region and Spontaneous Pneumomediastinum in Infection: Case Report. **Ibero-American Journal of Humanities, Sciences and Education,** v. 11, n. 10, p. 5367-5374, 2025.

PEREIRA, Ester Miranda *et al.* Epidemiology of Chromosomal Syndromes in the State of Piauí: Report of the first 100 karyotype tests performed in the State. **Research, Society and Development,** v. 11, n. 9, p. e0411931413-e0411931413, 2022.

PEREIRA, Amanda Siqueira *et al.* Pneumothorax, Pneumomediastinum and Bullae in COVID-19 **ULAKES JOURNAL OF MEDICINE,** v. 1, 2020.

QUEIROZ, Gabriel Moreira Furtado *et al.* Hamman syndrome: a series of cases treated in emergency hospitals in Manaus-AM in 2021 and 2022. **Brazilian Journal of Health Review,** v. 6, n. 2, p. 4826-4834, 2023.

ROSINHAS, João Filipe Alves Mesquita; SOARES, Sara Maria Castelo Branco; PEREIRA, Adelina Branca Madeira. Hamman's syndrome. **Jornal Brasileiro de Pneumologia,** v. 44, p. 433-433, 2018.

SILVA, Andréa Alves. Pneumomediastinum Secondary to a Diagnosis of Covid-19 in a Young Patient - Case Report. **The Brazilian Journal of Infectious Diseases,** v. 26, p. 102056, 2022.

SOUSA, Rosa Célia Alves *et al.* Evaluation of wheezing in infants and children. **Brazilian Journal of Implantology and Health Sciences,** v. 6, n. 11, p. 225-239, 2024.

WAJIMA, Leandro Taeo *et al.* Clinical-epidemiological profile of patients with pneumomediastinum and COVID-19 in an intensive care unit in the western region of Paraná. **Archives of Health Sciences of UNIPAR,** v. 27, n. 7, p. 3494-3509, 2023.