

World Journal of *Clinical Cases*

World J Clin Cases 2023 February 16; 11(5): 979-1223



Contents

Thrice Monthly Volume 11 Number 5 February 16, 2023

MINIREVIEWS

- 979 Non-clostridium difficile induced pseudomembranous colitis
Jagirdhar GSK, Surani S
- 989 Pleural effusion in critically ill patients and intensive care setting
Bediwy AS, Al-Biltagi M, Saeed NK, Bediwy HA, Elbeltagi R

ORIGINAL ARTICLE

Retrospective Study

- 1000 Investigation of litigation in trauma orthopaedic surgery
Salimi M, Heidari MB, Ravandi Z, Mosalamiaghili S, Mirghaderi P, Jafari Kafiabadi M, Biglari F, Salimi A, Sabaghzadeh Irani A, Khabiri SS
- 1009 Type 2 diabetes mellitus characteristics affect hepatocellular carcinoma development in chronic hepatitis B patients with cirrhosis
Li MY, Li TT, Li KJ, Zhou C
- 1019 Relationship between glycemic variability and cognitive function in lacune patients with type 2 diabetes
Meng QZ, Wang Y, Li B, Xi Z, Wang M, Xiu JQ, Yang XP
- 1031 COVID-19-related cardiomyopathy: Can dual-energy computed tomography be a diagnostic tool?
Aydin F, Kantarci M, Aydin S, Karavaş E, Ceyhan G, Ogul H, Şahin ÇE, Eren S

Observational Study

- 1040 Multiple regression analysis of risk factors related to radiation pneumonitis
Shi LL, Yang JH, Yao HF
- 1049 Right hemicolectomy combined with duodenum-jejunum Roux-en-Y anastomosis for hepatic colon carcinoma invading the duodenum: A single-center case series
Liu PG, Feng PF, Chen XF
- 1058 Analysis of the value and safety of thyroid-stimulating hormone in the clinical efficacy of patients with thyroid cancer
Liang JJ, Feng WJ, Li R, Xu RT, Liang YL

CASE REPORT

- 1068 Effect of liver transplantation with primary hyperoxaluria type 1: Five case reports and review of literature
Wang XY, Zeng ZG, Zhu ZJ, Wei L, Qu W, Liu Y, Tan YL, Wang J, Zhang HM, Shi W, Sun LY
- 1077 Diagnosis of an intermediate case of maple syrup urine disease: A case report
Lin YT, Cai YN, Ting TH, Liu L, Zeng CH, Su L, Peng MZ, Li XZ

- 1086** Angioimmunoblastic T-cell lymphoma induced hemophagocytic lymphohistiocytosis and disseminated intravascular coagulopathy: A case report
Jiang M, Wan JH, Tu Y, Shen Y, Kong FC, Zhang ZL
- 1094** Giant myxofibrosarcoma of the esophagus treated by endoscopic submucosal dissection: A case report
Wang XS, Zhao CG, Wang HM, Wang XY
- 1099** Novel gene mutation in maturity-onset diabetes of the young: A case report
Zhang N, Zhao H, Li C, Zhang FZ
- 1106** Orthodontic-surgical treatment for severe skeletal class II malocclusion with vertical maxillary excess and four premolars extraction: A case report
Zhou YW, Wang YY, He ZF, Lu MX, Li GF, Li H
- 1115** Envafolelimab combined with chemotherapy in the treatment of combined small cell lung cancer: A case report
Liu MH, Li YX, Liu Z
- 1122** Thyrotoxicosis in patients with a history of Graves' disease after SARS-CoV-2 vaccination (adenovirus vector vaccine): Two case reports
Yan BC, Luo RR
- 1129** Administration of modified Gegen Qinlian decoction for hemorrhagic chronic radiation proctitis: A case report and review of literature
Liu SY, Hu LL, Wang SJ, Liao ZL
- 1137** Surgical resection of a giant thymolipoma causing respiratory failure: A case report
Gong LH, Wang WX, Zhou Y, Yang DS, Zhang BH, Wu J
- 1144** Successful treatment of granulomatosis with polyangiitis using tocilizumab combined with glucocorticoids: A case report
Tang PF, Xu LC, Hong WT, Shi HY
- 1152** Langerhans cell histiocytosis misdiagnosed as thyroid malignancy: A case report
Shi JJ, Peng Y, Zhang Y, Zhou L, Pan G
- 1158** Combined treatment of refractory benign stricture after esophageal endoscopic mucosal dissection: A case report
Pu WF, Zhang T, Du ZH
- 1165** Bladder preservation in complicated invasive urothelial carcinoma following treatment with cisplatin/gemcitabine plus tislelizumab: A case report
Yang R, Chen JX, Luo SH, Chen TT, Chen LW, Huang B
- 1175** *Nocardia cyriacigeorgica* infection in a patient with repeated fever and CD4⁺ T cell deficiency: A case report
Hong X, Ji YQ, Chen MY, Gou XY, Ge YM

- 1182** Closed loop ileus caused by a defect in the broad ligament: A case report
Zucal I, Nebiker CA
- 1188** Early postsurgical lethal outcome due to splenic littoral cell angioma: A case report
Jia F, Lin H, Li YL, Zhang JL, Tang L, Lu PT, Wang YQ, Cui YF, Yang XH, Lu ZY
- 1198** Combinations of nerve blocks in surgery for post COVID-19 pulmonary sequelae patient: A case report and review of literature
Jin Y, Lee S, Kim D, Hur J, Eom W
- 1206** Incidental right atrial mass in a patient with secondary pancreatic cancer: A case report and review of literature
Fioretti AM, Leopizzi T, La Forgia D, Scicchitano P, Oreste D, Fanizzi A, Massafra R, Oliva S
- 1217** Difficult airway due to cervical haemorrhage caused by spontaneous rupture of a parathyroid adenoma: A case report
Han YZ, Zhou Y, Peng Y, Zeng J, Zhao YQ, Gao XR, Zeng H, Guo XY, Li ZQ

ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Tian-Biao Zhou, MD, PhD, Chief Doctor, Professor, Department of Nephrology, Second Affiliated Hospital, Shantou University Medical College, Shantou 515041, Guangdong Province, China. zhoutb@aliyun.com

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (WJCC, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The WJCC is now abstracted and indexed in Science Citation Index Expanded (SCIE, also known as SciSearch®), Journal Citation Reports/Science Edition, Current Contents®/Clinical Medicine, PubMed, PubMed Central, Scopus, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database. The 2022 Edition of Journal Citation Reports® cites the 2021 impact factor (IF) for WJCC as 1.534; IF without journal self cites: 1.491; 5-year IF: 1.599; Journal Citation Indicator: 0.28; Ranking: 135 among 172 journals in medicine, general and internal; and Quartile category: Q4. The WJCC's CiteScore for 2021 is 1.2 and Scopus CiteScore rank 2021: General Medicine is 443/826.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Hua-Ge Yin; Production Department Director: Xiang Li; Editorial Office Director: Jin-Lei Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Bao-Gan Peng, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati, Ja Hyeon Ku

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

February 16, 2023

COPYRIGHT

© 2023 Baishideng Publishing Group Inc

INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>



Difficult airway due to cervical haemorrhage caused by spontaneous rupture of a parathyroid adenoma: A case report

Yong-Zheng Han, Yang Zhou, Ying Peng, Jin Zeng, Yu-Qing Zhao, Xiao-Ru Gao, Hong Zeng, Xiang-Yang Guo, Zheng-Qian Li

Specialty type: Anesthesiology

Provenance and peer review:

Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0
Grade B (Very good): 0
Grade C (Good): C, C, C
Grade D (Fair): 0
Grade E (Poor): 0

P-Reviewer: Fu CH, Taiwan;
Tsuchiya M, Japan

Received: December 1, 2022

Peer-review started: December 1, 2022

First decision: December 20, 2022

Revised: December 23, 2022

Accepted: January 16, 2023

Article in press: January 16, 2023

Published online: February 16, 2023



Yong-Zheng Han, Yang Zhou, Hong Zeng, Xiang-Yang Guo, Zheng-Qian Li, Department of Anesthesiology, Peking University Third Hospital, Beijing 100191, China

Yong-Zheng Han, Yang Zhou, Hong Zeng, Xiang-Yang Guo, Zheng-Qian Li, Beijing Center, Quality Control and Improvement on Clinical Anesthesia, Beijing 100191, China

Ying Peng, Department of General Surgery, Peking University Third Hospital, Beijing 100191, China

Jin Zeng, Department of Otorhinolaryngology Head and Neck Surgery, Peking University Third Hospital, Beijing 100191, China

Yu-Qing Zhao, Department of Radiology, Peking University Third Hospital, Beijing 100191, China

Xiao-Ru Gao, Department of Anesthesiology, Haidian Maternal and Child Health Care Hospital, Beijing 100191, China

Corresponding author: Zheng-Qian Li, PhD, Doctor, Department of Anesthesiology, Peking University Third Hospital, No. 49 North Garden Road, Haidian District, Beijing 100191, China. zhengqianli@hsc.pku.edu.cn

Abstract

BACKGROUND

Cervical haemorrhage due to spontaneous rupture of a parathyroid adenoma is a rare complication that may cause life-threatening acute airway compromise.

CASE SUMMARY

A 64-year-old woman was admitted to the hospital 1 day after the onset of right neck enlargement, local tenderness, head-turning difficulty, pharyngeal pain, and mild dyspnoea. Repeat routine blood testing showed a rapid decrease in the haemoglobin concentration, indicating active bleeding. Enhanced computed tomography images showed neck haemorrhage and a ruptured right parathyroid adenoma. The plan was to perform emergency neck exploration, haemorrhage removal, and right inferior parathyroidectomy under general anaesthesia. The patient was administered 50 mg of intravenous propofol, and the glottis was successfully visualised on video laryngoscopy. However, after the administration of a muscle relaxant, the glottis was no longer visible and the patient had a

difficult airway that prevented mask ventilation and endotracheal intubation. Fortunately, an experienced anaesthesiologist successfully intubated the patient under video laryngoscopy after an emergency laryngeal mask placement. Postoperative pathology showed a parathyroid adenoma with marked bleeding and cystic changes. The patient recovered well without complications.

CONCLUSION

Airway management is very important in patients with cervical haemorrhage. After the administration of muscle relaxants, the loss of oropharyngeal support can cause acute airway obstruction. Therefore, muscle relaxants should be administered with caution. Anaesthesiologists should pay careful attention to airway management and have alternative airway devices and tracheotomy equipment available.

Key Words: Cervical haemorrhage; Parathyroid adenoma; Muscle relaxants; Difficult airway; Case report

©The Author(s) 2023. Published by Baishideng Publishing Group Inc. All rights reserved.

Core Tip: Spontaneous parathyroid haemorrhage is a rare but potentially life-threatening complication. Anaesthesiologists need to take extra care when administering muscle relaxants to avoid increasing the difficulty of endotracheal intubation. Visual intubation tools, alternative airway devices such as laryngeal masks, and even tracheotomy preparations should be readily available.

Citation: Han YZ, Zhou Y, Peng Y, Zeng J, Zhao YQ, Gao XR, Zeng H, Guo XY, Li ZQ. Difficult airway due to cervical haemorrhage caused by spontaneous rupture of a parathyroid adenoma: A case report. *World J Clin Cases* 2023; 11(5): 1217-1223

URL: <https://www.wjgnet.com/2307-8960/full/v11/i5/1217.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v11.i5.1217>

INTRODUCTION

Spontaneous parathyroid haemorrhage is an exceptionally rare but potentially life-threatening condition due to airway compromise. Haemorrhage may be contained within the parathyroid gland but often presents as extracapsular haemorrhage extending into the neck or mediastinum, manifesting as neck circumference enlargement, neck tenderness, ecchymosis, acute pain, and dyspnoea. Such circumstances may result in a difficult airway[1,2]. We describe a case of spontaneous haemorrhage from a parathyroid adenoma presenting as an acute airway compromise requiring surgical evacuation.

CASE PRESENTATION

Personal and family history

The patient (height 170 cm, weight 75 kg, body mass index 24.5) has no significant fat accumulation in the neck, and denies the history of sleep apnea and any family history of related diseases.

History of past illness

Eight years previously, bilateral thyroid nodules and a right parathyroid nodule had been detected and left untreated. There was a history of neck compression before the onset of the present pharyngeal pain.

History of present illness

She had swelling of the right neck accompanied by tenderness, difficulty in turning the head, pharyngeal pain, and mild dyspnoea 1 d.

Chief complaints

A 64-year-old woman with pharyngeal pain of no apparent cause.

Further diagnostic work-up

Repeat routine blood testing showed that the haemoglobin concentration had decreased from 124 g/L to 108 g/L in 8 h, suggesting active bleeding. Calcium concentration was 2.79 mmol/L (normal level, 2.25-2.75 mmol/L), parathyroid hormone (PTH) had been tested immediately which was 344.50 pg/mL

(normal level, 15-65 pg/mL)[3].

Imaging examinations

Computed tomography (CT) revealed a soft tissue density lesion in the parapharyngeal space (Figure 1). The nasopharynx, oropharynx, and laryngeal pharynx were compressed and narrowed. The lesion extended from the neck to the mediastinum (Figure 2), involving the posterior pharyngeal wall, middle and upper oesophagus, bilateral carotid sheaths, posterior cervical trachea, thoracic trachea, and posterior thyroid. The thoracic trachea was slightly shifted to the right. The lesion was closely related to a right posterior mass with varying density outside the thyroid.

Laboratory examinations

Auxiliary testing showed a haemoglobin concentration of 124 g/L, leukocyte count of $9.06 \times 10^9/L$, and neutrophil ratio of 0.847.

Physical examination

Physical examination revealed mildly congested oral and pharyngeal mucosa, lymphofollicular hyperplasia in the posterior pharyngeal wall, grade 1 sized bilateral tonsils, and a sharp and well-elevated epiglottic margin. The area around the right submandibular gland was swollen, with slightly reddened skin and marked tenderness. It is a pity that we didn't leave the external photograph of the patient's neck and jaw.

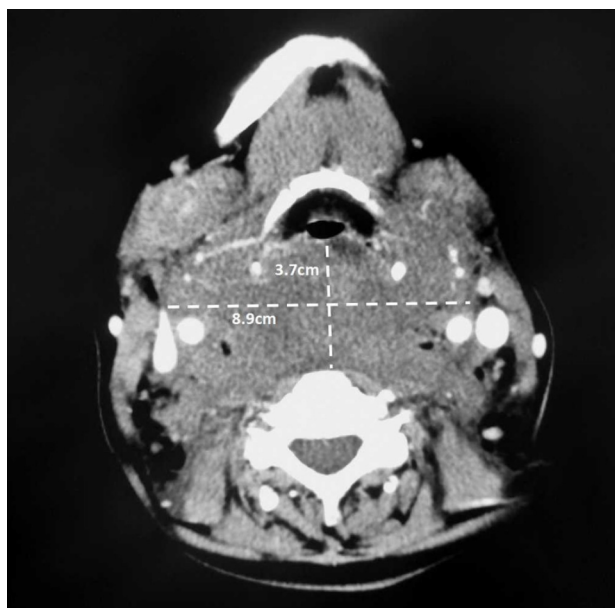
FINAL DIAGNOSIS

Based on the history, clinical manifestations, and auxiliary test results, the patient was diagnosed with rupture and bleeding of a right parathyroid adenoma.

TREATMENT

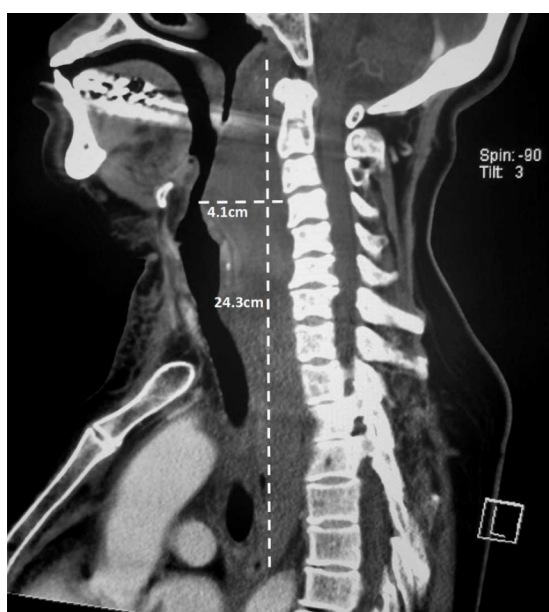
The progressive decrease in the haemoglobin concentration suggested that the bleeding might aggravate the dyspnoea or even lead to asphyxia due to airway compression. Therefore, emergency neck exploration, haemorrhage removal, and right inferior parathyroidectomy were planned.

In the operation room, we conducted preoperative airway evaluation: Mouth opening > 3 cm, modified Mallampati grade I, normal dentition, but limited cervical spine movement and CT images showed trachea compression which did not rule out the possibility of difficult airway[4]. Considering that endotracheal intubation guided by fiberoptic bronchoscope in awake state may cause discomfort, cough, and even further aggravate hematoma, we were prepared to give a small dose of propofol. If the glottis can be seen clearly, continuing to administer opioids and muscle relaxants, and directing endotracheal intubation under laryngoscope; If Cormack-Lehane grade is III or IV, we will insert endotracheal tube guided by fiberoptic bronchoscope after the patient regained consciousness. Electrocardiography, pulse oximetry, and non-invasive blood pressure were all continuously monitored during anaesthesia and recorded at fixed intervals of 3 min. After 3 min of preoxygenation, the patient was administered 50 mg of intravenous propofol, and the airway was checked with a video laryngoscope (first laryngoscopy). Although there was cyan-purple-coloured congestion of the posterior pharyngeal wall, the glottis was visible. The patient was then administered 50 mg of propofol and 30 mg of rocuronium intravenously. During the second video laryngoscopy, the visual field was obscured by secretions and blood, and the glottis was not clearly visible. The patient could not be ventilated with a mask, and the oxygen saturation decreased sharply to 9%. Unfortunately, our research center does not have sugammadex to reverse rocuronium after difficult ventilation. A laryngeal mask was applied immediately and the ventilation situation improved, with the oxygen saturation gradually increasing to 100% within 2 min. Fortunately, the experienced anaesthesiologist arriving at the operation room attempted to intubate the patient through the mouth under video laryngoscopy and successfully inserted a #6.5 steel-reinforced endotracheal tube. Anaesthesia was maintained with 1.5%–2% sevoflurane and 100–300 µg/h remifentanyl during emergency surgery. A sternal incision (2 cm × 10 cm) was created and the anterior cervical tissue was separated in a layer-by-layer manner. There was a large amount of pooled blood in the trachea and oesophagus. The parathyroid gland at the right lower pole was enlarged, fragile, and had a breach. The right inferior parathyroid gland and right thyroid gland were completely resected, and the left thyroid was partially resected because of a goitre. The right and left thyroid glands hindered the exposure of the right parathyroid gland, the back of the oesophagus, and the trachea. During the operation, the recurrent laryngeal nerve was dissected for protection, and about 200 mL of local blood clots were removed. According to the records, we show the process of the event in chronological order as follows (Figure 3).



DOI: 10.12998/wjcc.v11.i5.1217 Copyright ©The Author(s) 2023.

Figure 1 Preoperative axial venous phase contrast-enhanced computed tomography image of the neck (hyoid level). The soft tissue density lesion is in contact with the posterior tracheal wall anteriorly, anterior cervical vertebra posteriorly, and the bilateral carotid sheaths, and is displacing the surrounding tissue and enveloping part of the vessels. There is no obvious enhancement of the lesion, which has a slightly lower density than muscle. There is swelling and effusion in the surrounding fatty tissue.

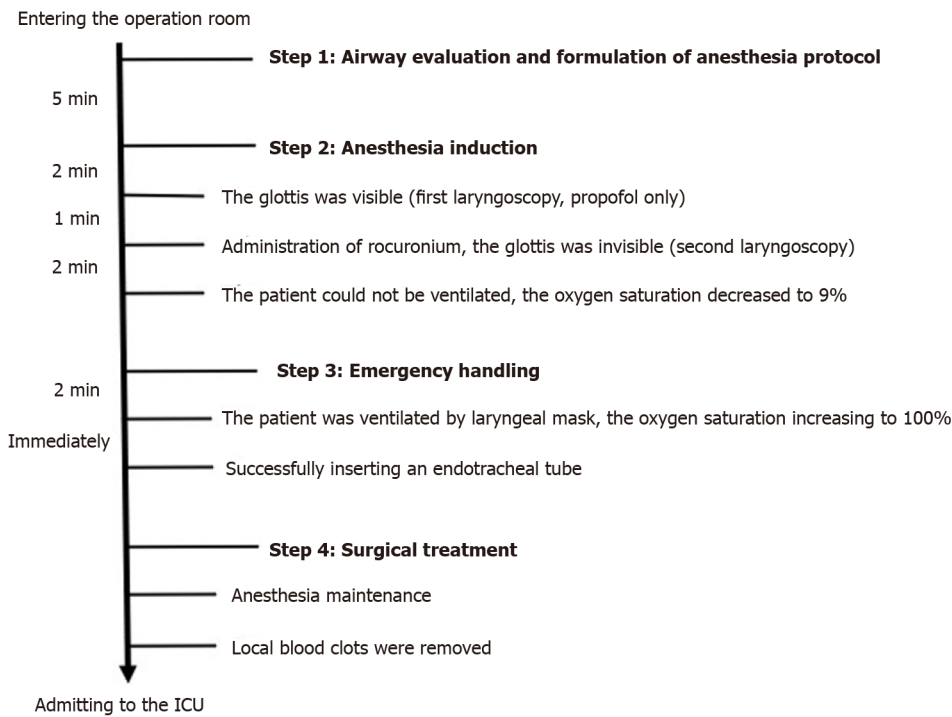


DOI: 10.12998/wjcc.v11.i5.1217 Copyright ©The Author(s) 2023.

Figure 2 Preoperative sagittal venous phase contrast-enhanced computed tomography image of the neck (median plane). The soft tissue density lesion extends from the neck to the mediastinum and involves the posterior pharyngeal wall, middle and upper oesophagus, posterior cervical trachea, and thoracic trachea. The nasopharynx, oropharynx, and laryngeal pharynx are compressed and narrowed. The trachea is compressed.

OUTCOME AND FOLLOW-UP

After surgery, the patient was admitted to the intensive care unit, extubated on postoperative day 1 (calcium concentration was 2.07 mmol/L, PTH was 26.35 pg/mL), and discharged on postoperative day 9. No postoperative complications occurred. Postoperative pathology showed that the lesion was a parathyroid adenoma with severe bleeding and cystic changes.



DOI: 10.12998/wjcc.v11.i5.1217 Copyright ©The Author(s) 2023.

Figure 3 The process of the event in chronological order. ICU: Intensive care unit.

DISCUSSION

Spontaneous haemorrhage of a parathyroid adenoma is a rare condition that was first reported in 1934 [5]. Subsequently, there have been over 80 cases of haemorrhage associated with a parathyroid adenoma described in the English literature, and four cases reported in the Chinese literature; the patients in more than half of these cases presented with compressive symptoms due to haemorrhage [1,2]. Spontaneous rupture of a parathyroid adenoma is caused by an imbalance between tumour growth and blood supply [6]. The clinical manifestations of ruptured parathyroid adenoma are mostly atypical, such as neck swelling, pain, ecchymosis, and compression of adjacent anatomical structures in accordance with the location and degree of bleeding. Since no unified diagnostic criteria in clinical practice, Simcic *et al* [7] had proposed three criteria for the diagnosis of parathyroid tumor rupture and bleeding: acute neck swelling, hypercalcemia, and neck or chest ecchymosis. Compared with imaging examination, not all cases meet the diagnostic criteria, the increase of blood calcium and PTH is more suggestive [1,3,8]. Hypercalcemia may be related to the release of cyst fluid containing high levels of parathyroid hormone caused by acute infarction of parathyroid adenoma, which also explains why the blood calcium and PTH of patients fall to normal levels soon after surgery. Anaesthesia-related problems associated with spontaneous haemorrhage of a parathyroid adenoma include difficult laryngoscopy, airway stenosis due to compression caused by cervical haemorrhage, and even difficult ventilation in extreme cases.

Bleeding in the retropharyngeal and submandibular spaces can cause upper airway obstruction and life-threatening complications [8-11]. Patients with early retropharyngeal haemorrhage may present with a sore throat without dyspnoea and may be misdiagnosed with viral pharyngitis. Twelve to 48 h of bleeding may precede symptoms of respiratory embarrassment [12]. The rapid development of respiratory distress from sublingual, retropharyngeal, and parapharyngeal haemorrhages can be fatal. Bleeding into the retropharyngeal space is serious because of the anatomic characteristics of the pharyngeal muscles. Without muscle support, the pharyngeal airway can be nearly completely blocked. Therefore, muscle relaxants must be used very carefully. In the present case, the glottis was visible during the first video laryngoscopy but was not visible during the second laryngoscopy after rocuronium administration. We speculated that the loss of laryngopharyngeal muscle tone after the administration of rocuronium caused the parapharyngeal haemorrhage to compress the arytenoid cartilages, close the vocal cords, and obstruct the airway. However, no CT images of the laryngopharynx were taken after the rocuronium was administered.

Early cervical exploration was necessary to evacuate the coagulated haematoma and ligate the bleeding vessel. This course of treatment allowed for a shortened duration of hospitalisation. Severe retropharyngeal bleeding was indicated by the bulging of the posterior wall causing an abnormal thickness of the retropharyngeal tissues, which measured greater than 7 mm from the anteroinferior aspect of the second cervical vertebra to the posterior pharyngeal wall [13].

CONCLUSION

Spontaneous parathyroid haemorrhage is a rare but potentially life-threatening complication. Anaesthesiologists need to take extra care when administering muscle relaxants to avoid increasing the difficulty of endotracheal intubation. Visual intubation tools, alternative airway devices such as laryngeal masks, and even tracheotomy preparations should be readily available.

ACKNOWLEDGEMENTS

We sincerely thank all the staff of the Anaesthesiology Department of Peking University Third Hospital for their help in this case report.

FOOTNOTES

Author contributions: Han YZ, Zhou Y, Li ZQ contributed to manuscript writing and editing; Peng Y, Zeng J, Zhao YQ, Gao XR contributed to cured the patient and data collection; Zeng H, Guo XY, Li ZQ contributed to conceptualization and supervision; All authors have read and approved the final manuscript.

Supported by Key Clinical Projects of Peking University Third Hospital, No. BYSYZD2021013; and Beijing Haidian District Innovation and transformation project, No. HDCXZHZB2021202.

Informed consent statement: We have obtained the informed consent which was verbal of patients in the study. And we have applied for an informed consent waiver from the Ethics Committee. The study was approved by the ethics committee of Peking University Third Hospital and the reference number was IRB00006761-M2022405.

Conflict-of-interest statement: All the authors declare that they have no conflict of interest to disclose.

CARE Checklist (2016) statement: The authors have read the CARE Checklist(2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

Country/Territory of origin: China

ORCID number: Yong-Zheng Han 0000-0002-7523-8801; Yang Zhou 0000-0002-1548-973X; Jin Zeng 0000-0002-8866-8640; Yu-Qing Zhao 0000-0002-0577-7957; Hong Zeng 0000-0001-5191-3086; Xiang-Yang Guo 0000-0002-5694-2174; Zheng-Qian Li 0000-0001-6758-0685.

S-Editor: Liu JH

L-Editor: A

P-Editor: Liu JH

REFERENCES

- 1 Garrahy A, Hogan D, O'Neill JP, Agha A. Acute airway compromise due to parathyroid tumour apoplexy: an exceptionally rare and potentially life-threatening presentation. *BMC Endocr Disord* 2017; **17**: 35 [PMID: 28637440 DOI: 10.1186/s12902-017-0186-2]
- 2 An L, Ji T, Li L. Diffuse hematoma caused by spontaneous rupture of a parathyroid adenoma: a case report. *Braz J Otorhinolaryngol* 2020; **86** Suppl 1: 48-50 [PMID: 28728949 DOI: 10.1016/j.bjorl.2017.06.006]
- 3 Khan S, Choe CC, Shabaik A, Bouvet M. Parathyroid adenoma presenting with spontaneous cervical and anterior mediastinal hemorrhage: A case report. *Medicine (Baltimore)* 2019; **98**: e14347 [PMID: 30702621 DOI: 10.1097/MD.00000000000014347]
- 4 Kheterpal S, Han R, Tremper KK, Shanks A, Tait AR, O'Reilly M, Ludwig TA. Incidence and predictors of difficult and impossible mask ventilation. *Anesthesiology* 2006; **105**: 885-891 [PMID: 17065880 DOI: 10.1097/0000542-200611000-00007]
- 5 Capps RB. Multiple parathyroid tumors with massive mediastinal and subcutaneous hemorrhage. *Am J Med Sci* 1934; **188**: 801-804 [DOI: 10.1097/00000441-193412000-00007]
- 6 Efremidou EI, Papageorgiou MS, Pavlidou E, Manolas KJ, Liratzopoulos N. Parathyroid apoplexy, the explanation of spontaneous remission of primary hyperparathyroidism: a case report. *Cases J* 2009; **2**: 6399 [PMID: 20184676 DOI: 10.1186/1745-6215-2-6399]

- 10.1186/1757-1626-2-6399]
- 7 **Simcic KJ**, McDermott MT, Crawford GJ, Marx WH, Ownbey JL, Kidd GS. Massive extracapsular hemorrhage from a parathyroid cyst. *Arch Surg* 1989; **124**: 1347-1350 [PMID: [2684095](#) DOI: [10.1001/archsurg.1989.01410110109023](#)]
- 8 **Zhao C**, Wang X, Wei H, Ma G. Parathyroid adenoma causing a spontaneous cervical and mediastinal massive hematoma. *Int J Clin Exp Med* 2015; **8**: 21826-21829 [PMID: [26885150](#)]
- 9 **Shinomiya H**, Otsuki N, Takahara S, Yasui R, Sawada N, Komatsu H, Fujio H, Fujiwara H, Nibu K. Parathyroid adenoma causing spontaneous cervical hematoma: two case reports. *BMC Res Notes* 2015; **8**: 726 [PMID: [26610856](#) DOI: [10.1186/s13104-015-1611-0](#)]
- 10 **Ulrich L**, Knee G, Todd C. Spontaneous cervical haemorrhage of a parathyroid adenoma. *Endocrinol Diabetes Metab Case Rep* 2015; **2015**: 150034 [PMID: [26124955](#) DOI: [10.1530/EDM-15-0034](#)]
- 11 **van den Broek JJ**, Poelman MM, Wiarda BM, Bonjer HJ, Houdijk AP. Extensive cervicomedastinal hematoma due to spontaneous hemorrhage of a parathyroid adenoma: a case report. *J Surg Case Rep* 2015; **2015** [PMID: [25935903](#) DOI: [10.1093/jscr/rjv039](#)]
- 12 **Chin KW**, Sercarz JA, Wang MB, Andrews R. Spontaneous cervical hemorrhage with near-complete airway obstruction. *Head Neck* 1998; **20**: 350-353 [PMID: [9588708](#) DOI: [10.1002/\(sici\)1097-0347\(199807\)20:4<350::aid-hed10>3.0.co;2-m](#)]
- 13 **Wholey MH**, Bruwer AJ, Baker HL Jr. The lateral roentgenogram of the neck; with comments on the atlanto-odontoid-basion relationship. *Radiology* 1958; **71**: 350-356 [PMID: [13579232](#) DOI: [10.1148/71.3.350](#)]



Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

Help Desk: <https://www.f6publishing.com/helpdesk>

<https://www.wjgnet.com>

