

Bezold abscess presenting as a carbuncle-like cervical lesion in an adult with destructive otomastoiditis: a case report from Malaysia

E. F. Alphaella¹ · A. M. Dayang Suhana² · Hanzali Jumastapha² · Lim Siong Hee³

Received: 7 July 2026 / Accepted: 5 October 2026
© The Author(s) 2026

Abstract

Background Bezold abscess is a rare extracranial complication of otomastoiditis caused by spread of infection through an eroded mastoid tip into the deep cervical tissues. Its rarity and variable presentation can delay recognition, particularly when superficial cutaneous changes dominate the clinical picture.

Case presentation A 43-year-old Malaysian man presented with 2 weeks of left otalgia, purulent otorrhea, fever and progressive left lateral neck swelling. The lesion was initially referred as a neck carbuncle because of erythema, skin necrosis and multiple draining puncta. Random blood glucose was 23.4 mmol/L and previously undiagnosed diabetes mellitus was subsequently identified. Contrast-enhanced computed tomography showed destructive left otomastoiditis with mastoid air-cell erosion and an extensive intramuscular rim-enhancing collection in the left posterolateral neck measuring approximately $6.9 \times 8.2 \times 13.1$ cm, involving the paravertebral musculature and extending across the midline at C4/C5. Emergency canal-wall-up mastoid surgery with cervical wound saucerization, debridement and drainage yielded approximately 80 mL of frank pus from the middle ear, mastoid cavity, mastoid tip and contiguous cervical tissues. Culture grew *Klebsiella pneumoniae*. The patient received intravenous piperacillin–tazobactam 4.5 g four times daily and metronidazole 500 mg three times daily for 1 week. After infection control and development of a healthy granulating wound bed, delayed reconstruction was performed 42 days later using a 9×6 cm full-thickness skin graft from the left inguinal region. No cholesteatoma was identified at second-look exploration. At 4 months, the graft and wound had healed well; pure-tone audiometry before discharge showed mild left high-frequency sensorineural hearing loss.

Conclusion Bezold abscess can present as a carbuncle-like cervical lesion. Coexisting otalgia, otorrhea, or mastoid tenderness should prompt careful ear examination and early contrast-enhanced imaging. Definitive treatment requires antimicrobial therapy and surgical source control; extensive skin and soft-tissue loss may require staged reconstruction.

Keywords Bezold abscess · Otomastoiditis · Deep neck abscess · Carbuncle-like lesion · Mastoidectomy · Staged reconstruction

This Article in Press is shared early to give you faster access to new research. It is citable and carries a permanent DOI. The final edited version will replace it automatically.



Abbreviations

CT	Computed tomography
ENT	Ear, nose, and throat
IV	Intravenous
SOFA	Sequential organ failure assessment

Introduction

Bezold abscess is a rare deep-neck complication of otomastoid infection in which suppuration escapes through an eroded mastoid tip, classically along the digastric groove and into cervical soft tissues. Although serious complications of otitis media have declined markedly in the antibiotic era, the resulting loss of clinical familiarity can make uncommon presentations difficult to recognize [1–3].

Contemporary systematic reviews confirm both the rarity and heterogeneity of this entity. Vallengia et al. analyzed 97 reported patients and found mastoid-tip erosion in approximately half, while Young et al. similarly emphasized the variable clinical presentation and the importance of timely diagnosis and intervention [2, 3]. Because the collection is often deep to the sternocleidomastoid muscle, visible cervical findings may underestimate or misrepresent the anatomical origin of disease [1, 2].

The diagnostic problem is especially important when the cervical component resembles a common superficial skin infection. A Malaysian case has previously highlighted Bezold abscess as a complication of acute otitis media [4], but extensive cutaneous necrosis with a carbuncle-like appearance and subsequent staged reconstruction is rarely detailed. We report such a presentation and focus on the anatomical basis of diagnosis, operative source control, and reconstructive course.

Case presentation

Patient information and clinical findings

A 43-year-old Malaysian man of Bidayuh ethnicity presented to the emergency department with a 2-week history of progressively worsening left-sided otalgia, purulent otorrhea, fever, and painful left neck swelling. During the preceding week, the swelling enlarged rapidly and developed erythema, skin breakdown, and spontaneous purulent discharge through multiple puncta. Because the cutaneous appearance resembled a carbuncle, he was initially referred with a presumptive diagnosis of a left neck carbuncle.

His past history was notable for chronic rhinosinusitis with nasal polyposis. He had no known prior diagnosis of diabetes mellitus, chronic otitis media, or immunodeficiency. There was no preceding neck trauma, recent dental infection, previous neck surgery, or known tuberculosis exposure.

On arrival, he appeared acutely ill but was hemodynamically stable. Examination showed a large tender erythematous posterolateral neck swelling with surrounding induration, multiple puncta and purulent discharge. There was no clinical airway compromise or cranial nerve deficit. Otorhinolaryngological examination demonstrated active purulent otorrhea from the left external auditory canal. The available co-author record described a perforated tympanic membrane with pus in the left ear. Left mastoid tenderness further raised suspicion of an otogenic source. The carbuncle-like appearance of the left lateral neck lesion at presentation is shown in Fig. 1.

Diagnostic assessment

Initial laboratory investigations showed a white blood cell count of $21.6 \times 10^9/L$ and C-reactive protein of 1688 nmol/L. Random blood glucose was 23.4 mmol/L, and previously undiagnosed diabetes mellitus was

Fig. 1 Carbuncle-like left lateral neck lesion with erythema and multiple draining puncta at presentation



subsequently identified. Because the patient remained hemodynamically stable and the available record did not document organ dysfunction, hypotension, lactate elevation, altered mental status, or SOFA change, the case is described as complicated/destructive otomastoid infection rather than sepsis.

Contrast-enhanced CT demonstrated an extensive intramuscular rim-enhancing collection in the left posterolateral neck involving the semispinalis cervicis, semispinalis capitis, splenius capitis, and levator scapulae muscles (Fig. 2A–C). The collection measured approximately $6.9 \times 8.2 \times 13.1$ cm and crossed the midline at C4/C5. Anterior extension involved the left preauricular and postauricular regions, with possible intra-auricular extension. Left mastoid effusion with mastoid air-cell erosion was present. In the context of destructive otomastoiditis and contiguous extension from the mastoid region into deep cervical tissues, these findings supported the diagnosis of Bezold abscess rather than an isolated superficial neck abscess.

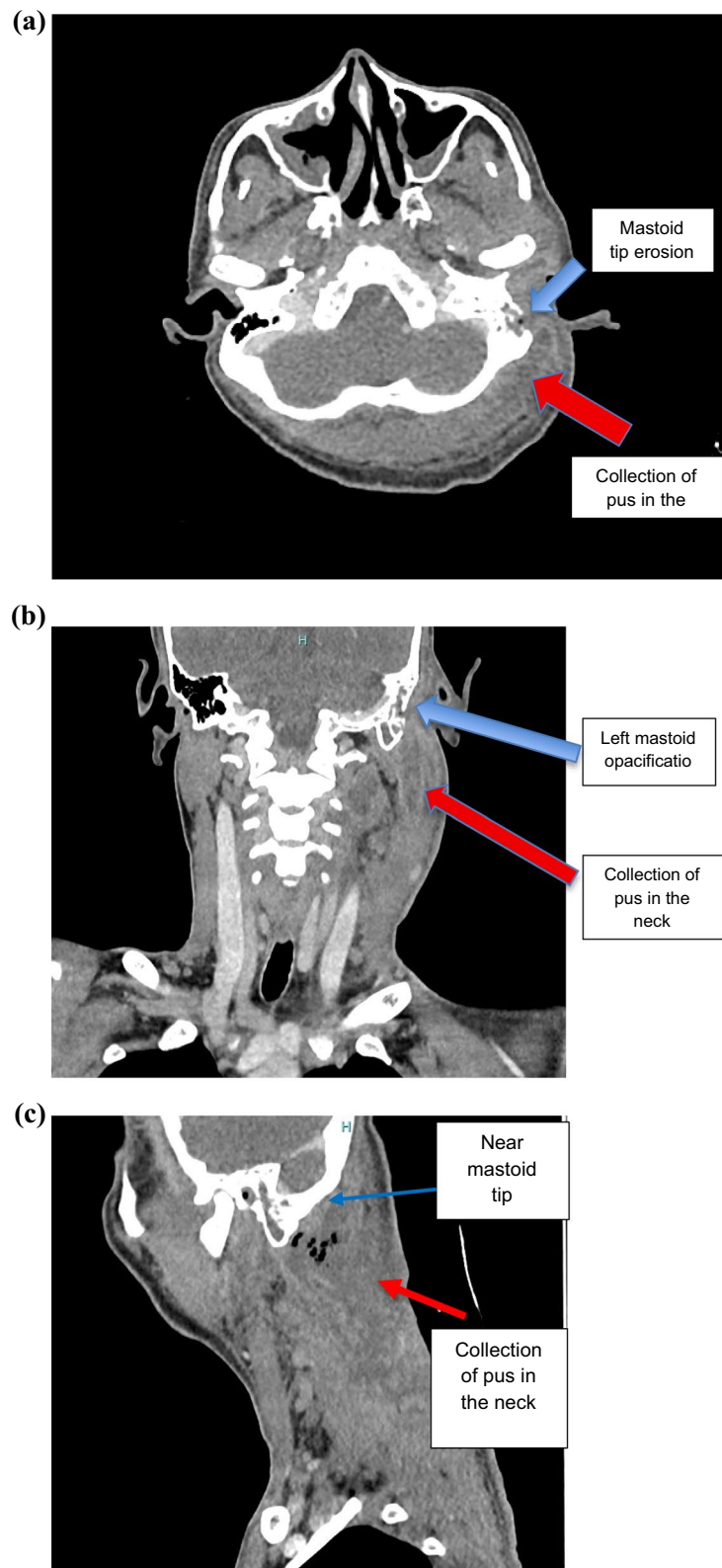
Therapeutic intervention and operative findings

The patient underwent emergency left canal-wall-up mastoid surgery together with cervical wound saucerization, extensive debridement, and drainage. A postauricular incision was extended towards the nape of the neck, and devitalized infected skin was excised until healthy tissue was encountered. The mastoid was drilled to drain the otogenic focus while preserving the posterior canal wall. Frank pus was found in the middle-ear cavity, mastoid cavity, and mastoid tip, with contiguous extension to the left postauricular tissues and involvement of the sternocleidomastoid region. Approximately 80 mL of pus was drained. The term “saucerization” in this report refers to the cervical wound procedure, not mastoid saucerization.

An intraoperative pus specimen grew *Klebsiella pneumoniae* susceptible to amoxicillin–clavulanic acid and cefuroxime. The documented antimicrobial regimen was intravenous piperacillin–tazobactam (Tazocin) 4.5 g four times daily plus intravenous metronidazole 500 mg three times daily for a total of 1 week.

The cervical wound was managed open after source control because of extensive tissue loss and ongoing contamination. The resulting cervical tissue defect after debridement is shown in Fig. 3. Reconstruction was deliberately delayed until purulent discharge and slough had resolved and a healthy granulating wound bed had developed. Forty-two days after the initial operation, a planned second-stage procedure was performed. The middle ear and operative wound were re-explored and debrided. The middle ear appeared normal and no cholesteatoma was identified. The left nape wound was clean. A 9×6 cm full-thickness skin graft was harvested from the left inguinal region, applied to the debrided neck defect, and secured with 3/0 undyed Vicryl and staples.

Fig. 2 Contrast-enhanced CT of the temporal bone and neck. **A–C** Images demonstrate destructive left otomastoid disease with mastoid air-cell erosion and the extensive posterolateral cervical collection extending through deep cervical musculature



Follow-up and outcomes

Fig. 3 Cervical wound after surgical source control and debridement, demonstrating the tissue defect before definitive reconstruction



At 4 months after surgery, the cervical wound and skin graft had healed well without significant wound complication or documented recurrent infection. The healed left neck wound following delayed full-thickness skin graft reconstruction is shown in Fig. 4. Pure-tone audiometry performed before discharge showed mild high-frequency sensorineural hearing loss in the left ear and normal hearing thresholds in the right ear. The patient was subsequently discharged from follow-up of ENT. He was referred to a public community clinic for further follow-up and management of his diabetes mellitus.

Timeline

Time	Clinical course
Day 0	Presentation after 2 weeks of otalgia, otorrhea, and progressive carbuncle-like neck swelling; marked inflammatory response and newly identified diabetes mellitus
Day 0–1	Contrast-enhanced CT demonstrated destructive otomastoiditis and a $6.9 \times 8.2 \times 13.1$ cm deep cervical collection; emergency canal-wall-up mastoid surgery plus cervical saucerization, debridement, and drainage performed
Week 1	IV piperacillin–tazobactam 4.5 g QID plus IV metronidazole 500 mg TDS completed for 1 week; wound care continued
Day 42	Second-look exploration and debridement; no cholesteatoma; 9×6 cm full-thickness skin graft from left inguinal region applied to clean granulating neck wound
Up to 4 months	Wound/graft healed well; mild left high-frequency sensorineural hearing loss on pre-discharge audiometry; no documented recurrent infection; discharged from ENT follow-up

Fig. 4 Healed left neck wound following delayed full-thickness skin graft reconstruction



Discussion

This case is unusual because the dominant clinical feature was a necrotic, draining cervical lesion that closely resembled a carbuncle, while the primary source lay in the middle ear and mastoid. Bezold abscess is now uncommon, and modern reviews show marked heterogeneity in presentation [2, 3]. The extensive skin involvement in this patient illustrates how a deep otogenic process can eventually breach expected anatomical boundaries and become clinically misleading. The combination of a carbuncle-like lesion, destructive otomastoiditis, and subsequent staged reconstruction is the principal clinical contribution of this report.

The diagnosis was supported anatomically rather than by the coexistence of mastoiditis and a generic neck abscess alone. CT demonstrated mastoid air-cell erosion together with a large posterolateral intramuscular collection involving deep cervical musculature, while surgery demonstrated frank pus in the middle ear, mastoid cavity, and mastoid tip with extension into postauricular tissues and the sternocleidomastoid region. Mastoid-tip erosion is a frequent imaging feature in published Bezold abscess cases, and contrast-enhanced CT is central to defining the route and extent of spread and to operative planning [1–3].

The microbiological spectrum of Bezold abscess is heterogeneous [2]. *Klebsiella pneumoniae* was isolated in this patient. Its presence is noteworthy in the setting of newly diagnosed diabetes mellitus, but this single case cannot establish a specific causal relationship. Severe hyperglycemia may impair host defense and wound healing; however, the extent to which it contributed to tissue necrosis or the need for delayed reconstruction cannot be determined from this case.

Definitive management required control of both components of disease. Reviews consistently show that most reported patients receive intravenous antimicrobial therapy together with operative drainage, frequently including mastoidectomy [2, 5]. In this patient, canal-wall-up mastoid surgery addressed the otogenic focus, while cervical saucerization and debridement removed necrotic tissue and drained the deep collection. Culture sampling allowed microbiological characterization. Although the isolate was susceptible to amoxicillin–clavulanic acid and cefuroxime, the documented inpatient regimen was piperacillin–tazobactam plus metronidazole for 1 week.

The reconstructive course adds an important dimension. Immediate closure would have risked covering a contaminated wound after extensive tissue loss. Reconstruction was therefore deferred for 42 days until purulent discharge and slough had resolved and healthy granulation tissue was present. At second look, the middle ear was normal and no cholesteatoma was identified. A full-thickness inguinal graft then provided definitive coverage, with satisfactory healing at 4 months. This staged approach demonstrates that management of advanced Bezold abscess may extend beyond mastoidectomy and drainage to planned soft-tissue reconstruction once infection control is secure.

Comparison with published literature

Feature	Current case	Published literature
Adult presentation	Yes, 43 years	Adults predominate in several modern reviews [2, 3, 5]
Mastoid-tip/mastoid erosion	Present	Common imaging feature; mastoid-tip erosion reported in 53% in one systematic review [2]
Carbuncle-like cutaneous lesion	Prominent, with necrosis and draining puncta	Unusual and rarely emphasized
Diabetes mellitus	Newly diagnosed at presentation	Reported but not a prerequisite [2, 4]
Microbiology	<i>K. pneumoniae</i>	Heterogeneous; streptococci and other organisms reported [2, 5]
Cholesteatoma	Absent at second-look surgery	Recognized associated factor in a substantial subset [2, 6]
Staged reconstruction	Full-thickness skin graft at day 42	Rarely detailed in published case descriptions

Limitations

This report is limited by its retrospective dependence on available clinical documentation. HbA1c was not provided, so the chronicity of hyperglycemia cannot be established. The supplied record did not document a post-discharge oral antibiotic regimen, a formal 4-month otoscopic examination, or a contemporaneous glycemic-control measurement. In addition, the CT images available to the authors for manuscript preparation are screen-derived only as no better or clearer CT images available. No cholesteatoma was identified at second-look surgery, although cholesteatoma is a recognized associated factor in the literature [2, 6].

Conclusion

Bezold abscess should be considered when cervical swelling or a carbuncle-like lesion coexists with otalgia, otorrhea, or mastoid tenderness. In this case, CT and operative findings demonstrated destructive otomastoid infection with contiguous extension into deep cervical tissues despite a misleading superficial appearance. Effective treatment required antimicrobial therapy, mastoid and cervical surgical source control, and delayed reconstruction after the wound was clean and granulating. Careful ear examination and early contrast-enhanced imaging are therefore critical when apparently superficial neck infection is accompanied by otologic symptoms.

Learning points

- Bezold abscess should be considered when cervical swelling coexists with otalgia, otorrhea, or mastoid tenderness.
- Extensive cutaneous inflammation, necrosis, and draining puncta can mimic a superficial carbuncle-like neck infection.
- Contrast-enhanced CT of the temporal bone and neck is essential for demonstrating mastoid destruction, the route of cervical extension, and the full disease extent.
- Treatment requires antimicrobial therapy and definitive source control of both mastoid and cervical disease; extensive tissue loss may require staged reconstruction.

Patient perspective

A direct first-person patient statement was not available in the supplied clinical record. The patient consented to the use of his clinical information and images for publication according to the authors' documentation.

Acknowledgements The authors thank the University Malaysia Sarawak (UNIMAS) for the support. Authors would like to thank the patient for his consent and cooperation.

Author contributions REF managed the patient, collected the clinical information and drafted the initial manuscript. DSAM supervised the patient's management, critically revised the manuscript and provided specialist otorhinolaryngology expertise. HJ contributed to clinical interpretation and manuscript revision. LSH substantially contributed to manuscript development, literature synthesis and critical revision for important intellectual content. All authors read and approved the final manuscript.

Funding No funding was received for the preparation of this case report.

Data availability All related data is available upon requested from corresponding authors.

Declarations

Ethics approval and consent to participate Not applicable. This article reports a single clinical case and does not involve a research study requiring participant recruitment or intervention.

Consent for publication Written informed consent for publication of the patient's clinical information and images was obtained according to the authors' documentation.

Competing interests The authors declare that they have no competing interests.

Open Access This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Castillo M, Albernaz VS, Mukherji SK, Smith MM, Weissman JL. Imaging of Bezold's abscess. *AJR Am J Roentgenol*. 1998;171(6):1491–5. <https://doi.org/10.2214/ajr.171.6.9843276>.
2. Vallengia S, Minerva M, Muraro E, Bovo R, Marioni G, Manara R, Brotto D. Epidemiologic, imaging, and clinical issues in Bezold's abscess: a systematic review. *Tomography*. 2022;8(2):920–32. <https://doi.org/10.3390/tomography8020074>.
3. Young K, Ilustre J, Tang DM, Wu AW, Wong YT. A systematic review of cases with Bezold's abscess. *Otol Neurotol*. 2022;43(7):727–33. <https://doi.org/10.1097/MAO.0000000000003569>.
4. Nasir F, Asha'ari ZA. Bezold's abscess: a rare complication of acute otitis media. *Malays Fam Phys*. 2017;12(2):26–8.
5. Alkhalidi AS, Alwabli M, Albilasi T, Almuhanha K. Bezold's abscess: a case report and review of cases over 20 years. *Cureus*. 2022;14(1): e21533. <https://doi.org/10.7759/cureus.21533>.
6. Uchida Y, Ueda H, Nakashima T. Bezold's abscess arising with recurrent cholesteatoma 20 years after the first surgery: with a review of the 18 cases published in Japan since 1960. *Auris Nasus Larynx*. 2002;29(4):375–8. [https://doi.org/10.1016/S0385-8146\(02\)00057-3](https://doi.org/10.1016/S0385-8146(02)00057-3).
7. Lyoubi H, Berrada O, Lekhal A, Abada RLA, Mahtar M. Bezold's abscess: an extremely rare complication of suppurative mastoiditis: case report and literature review. *Int J Surg Case Rep*. 2020;77:534–7. <https://doi.org/10.1016/j.ijscr.2020.11.052>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

E. F. Ralphaella¹ · A. M. Dayang Suhana² · Hanzali Jumastapha² · Lim Siong Hee³

✉ A. M. Dayang Suhana
amdsuhana@unimas.my

✉ Lim Siong Hee
shlim@unimas.my

¹ Department of Otorhinolaryngology–Head and Neck Surgery, Sarawak General Hospital, Kuching, Sarawak, Malaysia

² Department of Otorhinolaryngology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak, Malaysia

- ³ Department of Community Medicine and Public Health, Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak, Datuk Mohammad Musa Road, 94300 Kota Samarahan, Sarawak, Malaysia