

Intracranial Abscess

EARLY, alongside surgery and antibiotics — no specific window is stated

An adjunct to neurosurgical drainage and culture-directed antibiotics in selected high-risk intracranial abscess.

TREATMENT PROTOCOL

Pressure	2.0–2.8 ATA
Duration	60–90 min of oxygen
Frequency	Once or twice daily. Twice daily in the initial or life-threatening phase
Sessions	Optimal number unknown — individualise. Reasonable to extend to 40 or beyond with concomitant skull or spinal osteomyelitis
Review	After 20 treatments

PATIENT SELECTION

Who to treat	After CT or MRI diagnosis: multiple abscesses; deep or dominant location; compromised host, especially fungal; surgery contraindicated or the patient a poor surgical risk; GCS below 9; or deterioration despite standard aspiration and antibiotics.
Who not to treat, or when to stop	Surgery and antibiotics remain primary — this is adjunctive only, within a multidisciplinary team. Seizure and raised-intracranial-pressure risk apply despite the low reported rate of cerebral oxygen toxicity.
Mechanism	Inhibits anaerobic organisms; reduces perifocal oedema without steroids, preserving blood-brain-barrier antibiotic penetration; enhances neutrophil phagocytosis; augments oxygen-dependent transport of cephalosporins and aminoglycosides across the bacterial wall, which fails below a tissue pO ₂ of 20–30 mmHg.
Outcome measure	Reoperation rate; recurrence; Glasgow Outcome Scale; mortality; resolution on surveillance imaging.

WHAT THE NUMBERS SHOW

- Bartek 2016** (controlled cohort, n=40, 20 against 20): reoperations **10% vs 45% (P=0.03)**; recurrence **14% vs 58% (P<0.01)**; good outcome **80% vs 45% (P=0.04)**.
- 25-patient consecutive series** (348 treatments): **0% mortality, 73% complete recovery**, no cerebral oxygen toxicity.
- Kutlay series** (n=13 adults, no comparator): infection controlled in all, no late recurrence, but 2 of 13 (15.3%) needed early re-aspiration.

EVIDENCE BASE

Shape and certainty	Observational only — no randomised trial, and the page states the disease and its adjunctive context preclude one. The best designs are two retrospective comparative cohorts (Bartek 2016, Brunner 2025). The governing UHMS review concludes the risk-benefit balance favours adjunctive use in selected patients.	
Study	Design	Result and risk of bias
Bartek 2016, Acta Neurochir — PMID 27113742	Population-based comparative cohort, n=40	Positive on all three outcomes; ROBINS-I serious
Tomoye 2021, Undersea Hyperb Med — PMID 33648039	Narrative governing review	Risk-benefit favours adjunctive use
Brunner 2025, Neurosurg Rev — PMID 40731157	Retrospective comparative cohort, n=55 (25 vs 30)	Mixed ; ROBINS-I serious

WHAT THE EVIDENCE DOES NOT SUPPORT

Cautions	No randomised evidence exists for this indication. Hyperbaric oxygen must not replace surgery or antibiotics. Brunner 2025 is mixed: fewer residual abscesses at 6 months (80% vs 46.7%, p=0.009) but longer hospital stay with HBOT (29.9 vs 23.2 days, p=0.010), and the radiological difference had gone by 12 months (p=0.477).
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STATUS IN SOUTH AFRICA

Status	Accepted indication in South Africa (NRPL-recognised). Maps directly to the intraspinal and intracranial abscess diagnosis-treatment pair, a PMB-level diagnosis.
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Compiled from the **UHMS Hyperbaric Oxygen Therapy Indications Manual, 15th edition (2023)** and the appraised trial evidence held in an HBOT evidence library. All treatments are 100% oxygen. US Navy Treatment Table profiles are named, not reproduced — the US Navy Diving Manual is the operative document at the chamber. Session counts are largely guideline convention rather than dose-finding evidence. This card summarises published parameters and does not replace those source documents or clinical judgement for the individual patient. Generated 03 October 2026. Not a SAUHMA publication and carries no society endorsement.