

INFECTIOUS DISEASE LITERATURE

Hyperbaric oxygen therapy for wound healing and limb salvage: a systematic review.

PM R. 2009 May;1(5):471-89

Goldman RJ.

This article is a systematic review evaluating published clinical evidence of the efficacy of hyperbaric oxygen therapy (HBOT) for wound healing and limb salvage. The data source is the Ovid/Medline database for key word "Hyperbaric Oxygenation" with search limits (human studies, 1978-2008). Results were combined by Boolean AND with 1 of the 3 following searches: (a) wound healing (10 permutations); (b) compromised flap or graft (3); and (c) osteomyelitis (1). The author evaluated 620 citations, of which 64 reported original observational studies and randomized controlled trials (RCTs) on HBOT and healing outcomes. All citations with 5 subjects were selected for full text review (44 articles) and evaluated according to GRADE criteria for high, medium, low, or very low level of evidence. A Cochrane review identified 1 additional study with a low level of evidence. This systematic review discusses and tabulates every article of high or moderate level of evidence. For patients with diabetic foot ulcers (DFU) complicated by surgical infection, HBOT reduces chance of amputation (odds ratio [OR] 0.242, 95% CI: 0.137-0.428) (7 studies) and improves chance of healing (OR 9.992, 95% CI: 3.972-25.132) (6 studies). Positive efficacy corresponds to HBOT-induced hyperoxygenation of at-risk tissue (7 studies) as measured by transcutaneous oximetry. HBOT is associated with remission of about 85% of cases of refractory lower extremity osteomyelitis, but an RCT is lacking to clarify extent of effect. There is a high level of evidence that HBOT reduces risk of amputation in the DFU population by promoting partial and full healing of problem wounds. There is a moderate level of evidence that HBOT promotes healing of arterial ulcers, calciphylactic and refractory vasculitic ulcers, as well as refractory osteomyelitis. There is a low to moderate level of evidence that HBOT promotes successful "take" of compromised flaps and grafts.

Role of hyperbaric oxygen therapy in the treatment of bacterial spinal osteomyelitis.

J Neurosurg Spine. 2009 Jan;10(1):16-20

Ahmed R, Severson MA, Traynelis VC.

OBJECT: Hyperbaric oxygen therapy (HBO) is used as primary and/or adjunctive therapy in the treatment of various clinical conditions complicated by local hypoxia. It may have therapeutic potential in the treatment of neurosurgical infections such as spinal osteomyelitis that are associated with significant morbidity rates. The purpose of this study was to evaluate the efficacy of HBO therapy in the treatment of spinal osteomyelitis. **METHODS:** The clinical records of patients diagnosed with spinal osteomyelitis who received HBO therapy during their treatment at the authors' institution over the past 10 years were retrospectively reviewed. Six adult patients were identified. Four patients had recently undergone spinal surgery and secondary spinal osteomyelitis had developed. These patients received adjunctive HBO therapy due to significant comorbidities and risk factors for poor healing. **RESULTS:** All patients remained symptom and infection free over the subsequent follow-up period. Two patients had primary spinal osteomyelitis that had recurred despite a full course of appropriate antimicrobial therapy. Infection control was achieved after HBO therapy in 1 patient. The mean follow-up period for the study group was 2.9 years (range 5 months to 5 years). **CONCLUSIONS:** Hyperbaric oxygen therapy enabled infection cure in 5 of 6 patients with spinal osteomyelitis complicated by medical comorbidities or the failure of primary therapy. These results show that HBO may be a useful adjunctive therapeutic modality in the treatment of spinal osteomyelitis, particularly when there are medical comorbidities that increase the risk of poor healing. Hyperbaric oxygen therapy may also be beneficial in patients with relapsing primary spinal osteomyelitis after standard therapy has failed.



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A novel element in the management of chronic granulomatous disease (CGD)? - treatment of osteomyelitis with additional hyperbaric oxygen therapy (HBO).

Klin Padiatr. 2008 Nov-Dec;220(6):380-3. Epub 2008 Oct 23

Beltz K, Christaras A, Kovacevic A, Schaper J, Strelow H, Niehues T.

Chronic granulomatous disease (CGD) is caused by malfunctioning of the phagocyte NADPH oxidase responsible for the generation of microbicidal reactive oxygen species. It is characterized by severe recurrent infections with catalase positive bacteria. Bacterial or fungal osteomyelitis is a common complication which often does not respond sufficiently to intravenous antibiotic treatment. We report the case of a four year old boy with CGD and osteomyelitis of the mandible refractory to intravenous antibiotic therapy. Introduction of hyperbaric oxygen therapy (HBO) was well tolerated and led to resolution of the osteomyelitis.

Hyperbaric oxygen therapy with topical negative pressure: an alternative treatment for the refractory sternal wound infection.

J Card Surg. 2008 Nov-Dec;23(6):677-80. Epub 2008 Sep 10

Sun IF, Lee SS, Chiu CC, Lin SD, Lai CS.

Sternal osteomyelitis is a potentially lethal complication after cardiac surgery. It may be the cause of postoperative morbidity and mortality. We present a case of deep sternal wound infection after sternotomy. The patient received three treatments of surgical debridement, irrigation, topical negative pressure (TNP) dressing, and hyperbaric oxygen (HBO) therapy. Forty-five HBO therapy sessions were administered. After nine weeks, the sternal wound was healed and completely epithelialized. This conservative therapy can be an alternative and inexpensive method for the difficult sternal wound infection patient.

Adjuvant hyperbaric oxygen therapy in the treatment of hemodialysis patients with chronic osteomyelitis.

Ren Fail. 2008;30(2):233-7. Comment in: Ren Fail. 2008;30(6):665.

Chen CY, Lin KP, Lu SH, Chen YJ, Lin CF.

BACKGROUND: Hemodialysis dependence is an independent risk factor for hematogenous complication, including distant metastatic infection and osteomyelitis. Chronic osteomyelitis is a serious disease that fails to respond to aggressive medical and surgical treatment. Hyperbaric oxygen therapy has been proved to enhance bone and soft tissue healing in many studies. This article presents the preliminary result of hyperbaric oxygen therapy in hemodialysis-dependent patients with chronic osteomyelitis. **MATERIALS AND METHODS:** Ten hemodialysis dependent patients who were diagnosed with chronic diffuse osteomyelitis were treated prospectively with adjunctive hyperbaric oxygen therapy, in addition to aggressive surgical debridement and antibiotic treatment. **RESULTS:** The hyperbaric oxygen therapy averaged 20 daily sessions. Successful treatment was achieved in eight patients (80%). The mean length of treatment was 21 days. The preliminary results are comparable with other series. **CONCLUSION:** Hyperbaric oxygen is effective as an adjunct to aggressive medical and surgical treatment in chronic refractory osteomyelitis among hemodialysis-dependent patients.



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Malignant otitis externa.

Otolaryngol Clin North Am. 2008 Jun;41(3):537-49, viii-ix

Carfrae MJ, Kesser BW.

Malignant otitis externa is an invasive, potentially life-threatening infection of the external ear and skull base that requires urgent diagnosis and treatment. It affects immunocompromised individuals, particularly those who have diabetes. The most common causative agent remains *Pseudomonas aeruginosa*. Definitive diagnosis is frequently elusive, requiring a high index of suspicion, various laboratory and imaging modalities, and histologic exclusion of malignancy. Long-term oral antipseudomonal agents have proven effective; however, pseudomonal antibiotic resistance patterns have emerged and therefore other bacterial and fungal causative agents must be considered. Adjunctive therapies, such as aggressive debridement and hyperbaric oxygen therapy, are reserved for extensive or unresponsive cases.

Hyperbaric oxygen therapy (HBO) for the treatment of an epidural abscess in the posterior fossa in an 8-month-old infant.

Pediatr Neurosurg. 2008;44(3):239-42. Epub 2008 Mar 20

Baechli H, Schmutz J, Mayr JM.

Epidural abscesses in children are extremely rare, especially in the posterior fossa. In some cases antibiotic therapy and surgical drainage are insufficient for complete healing. We present the case of an 8-month-old boy who developed an epidural abscess in the posterior fossa after repeated surgical procedures for retrocerebellar arachnoid cysts and hydrocephalus. We decided to use adjuvant hyperbaric oxygen therapy (HBO) to avoid removal of the bone and the existing ventriculoperitoneal shunt. In this way osteomyelitis, potentially leading to bone removal and shunt infection, could be prevented. HBO is a relatively safe, noninvasive and cost-effective therapy to improve healing of chronic and deep-seated wound infections. To our knowledge HBO has never been used before in such a young child in neurosurgery. Multidisciplinary management is recommended to optimize treatment.

Successful treatment of extended epidural abscess and long segment osteomyelitis: a case report and review of the literature.

Surg Neurol. 2008 Feb;69(2):117-20; discussion 120. Epub 2007 Sep 6

Chang WC, Tsou HK, Kao TH, Yang MY, Shen CC.

BACKGROUND: Spinal osteomyelitis and epidural abscess are complicated medical conditions. Diagnosis is often delayed because of comorbidity. The time of instrumentation is still controversial. However, there is no doubting the indication of spinal hardware implantation when spinal fusion is needed. Long segment osteomyelitis and extended epidural abscess are rare. The treatment is challenging for neurosurgeons. We report a case of extended epidural abscesses and long segments of osteomyelitis. **METHODS:** One-stage meticulous debridement, anterior cervical corpectomies, and spinal fusion with mesh cage and titanium plate were performed on the patient. Hyperbaric oxygenation and 6 weeks of intravenous antibiotics were prescribed as adjuvant therapy. **RESULTS:** Both clinical presentations and imaging studies showed a good response to the treatment. The patient returned to his life 3 months later. **CONCLUSIONS:** This case illustrates that spinal instrumentation is not an absolute contraindication in the presence of epidural abscesses and vertebral osteomyelitis. Combined surgical debridement at a critical level, with adjuvant antibiotics and hyperbaric oxygenation, is a safe and effective therapy in those with neurologic deficits, spinal instability, and extended epidural abscess.



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Role of hyperbaric oxygen therapy in the treatment of postoperative organ/space sternal surgical site infections.

World J Surg. 2007 Aug;31(8):1702-6.

Barili F, Polvani G, Topkara VK, Dainese L, Cheema FH, Roberto M, Naliato M, Parolari A, Alamanni F, Biglioli P.

BACKGROUND: A prospective trial was designed to evaluate the effect of hyperbaric oxygen (HBO) therapy on organ/space sternal surgical site infections (SSIs) following cardiac surgery that requires sternotomy. **METHODS:** A total of 32 patients who developed postoperative organ/space sternal SSI were enrolled in this study from 1999 through 2005. All patients were offered HBO therapy. Group 1 included the patients who accepted and were able to undergo HBO therapy (n = 14); group 2 included patients who refused HBO therapy or had contraindications to it (n = 18). **RESULTS:** The two groups were well matched at baseline with comparable preoperative clinical characteristics and operative factors. Staphylococcus was the most common pathogen for both groups. The duration of infection was similar in groups 1 and 2 (31.8 7.6 vs. 29.3 5.7 days, respectively, p = 0.357). The infection relapse rate was significantly lower in group 1 (0% vs. 33.3%, p = 0.024). Moreover, the duration of intravenous antibiotic use (47.8 +/- 7.4 vs. 67.6 +/- 25.1 days, p = 0.036) and total hospital stay (52.6 +/- 9.1 vs. 73.6 +/- 24.5 days, p = 0.026) were both significantly shorter in group 1. **CONCLUSION:** Hyperbaric oxygen is a valuable addition to the armamentarium available to physicians for treating postoperative organ/space sternal SSI.

Hyperbaric oxygen for adjuvant therapy for chronically recurrent mandibular osteomyelitis in childhood and adolescence.

J Oral Maxillofac Surg. 2007 Feb;65(2):186-91

Lentrodt S, Lentrodt J, Kübler N, Mödder U.

PURPOSE: In this article, the question of whether adjuvant hyperbaric oxygen therapy (HBO) has a positive effect when treating chronically recurrent mandibular osteomyelitis in children and adolescents is discussed. **PATIENTS AND METHODS:** Over a period of 5 years, 4 cases were observed, 3 of which were submitted to adjuvant HBO. Details on the modalities of this type of treatment and the simultaneous intravenous administration of high doses of antibiotics are reported. **RESULTS:** All 3 patients have been free of any symptoms from 20 to 74 months (mean, 41 months) and therefore may most likely be regarded as healed. **CONCLUSION:** The small number of cases does not allow a final statement on the extent to which HBO contributed to the positive outcome. However, in our opinion, HBO is a most promising therapeutic option. Finally, the problems involved in prospective randomized studies of this rare disease are discussed in detail.



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Diagnosis and treatment of diabetic foot infections.

Plast Reconstr Surg. 2006 Jun;117(7 Suppl):212S-238S

Lipsky BA, Berendt AR, Deery HG, Embil JM, Joseph WS, Karchmer AW, LeFrock JL, Lew DP, Mader JT, Norden C, Tan JS; Infectious Diseases Society of America.

EXECUTIVE SUMMARY: 1. Foot infections in patients with diabetes cause substantial morbidity and frequent visits to health care professionals and may lead to amputation of a lower extremity. 2. Diabetic foot infections require attention to local (foot) and systemic (metabolic) issues and coordinated management, preferably by a multidisciplinary foot-care team (A-II). The team managing these infections should include, or have ready access to, an infectious diseases specialist or a medical microbiologist (B-II). 3. The major predisposing factor to these infections is foot ulceration, which is usually related to peripheral neuropathy. Peripheral vascular disease and various immunological disturbances play a secondary role. 4. Aerobic Gram-positive cocci (especially *Staphylococcus aureus*) are the predominant pathogens in diabetic foot infections. Patients who have chronic wounds or who have recently received antibiotic therapy may also be infected with Gram-negative rods, and those with foot ischemia or gangrene may have obligate anaerobic pathogens. 5. Wound infections must be diagnosed clinically on the basis of local (and occasionally systemic) signs and symptoms of inflammation. Laboratory (including microbiological) investigations are of limited use for diagnosing infection, except in cases of osteomyelitis (B-II). 6. Send appropriately obtained specimens for culture before starting empirical antibiotic therapy in all cases of infection, except perhaps those that are mild and previously untreated (B-III). Tissue specimens obtained by biopsy, ulcer curettage, or aspiration are preferable to wound swab specimens (A-I). 7. Imaging studies may help diagnose or better define deep, soft-tissue purulent collections and are usually needed to detect pathological findings in bone. Plain radiography may be adequate in many cases, but MRI (in preference to isotope scanning) is more sensitive and specific, especially for detection of soft-tissue lesions (A-I). 8. Infections should be categorized by their severity on the basis of readily assessable clinical and laboratory features (B-II). Most important among these are the specific tissues involved, the adequacy of arterial perfusion, and the presence of systemic toxicity or metabolic instability. Categorization helps determine the degree of risk to the patient and the limb and, thus, the urgency and venue of management. 9. Available evidence does not support treating clinically uninfected ulcers with antibiotic therapy (D-III). Antibiotic therapy is necessary for virtually all infected wounds, but it is often insufficient without appropriate wound care. 10. Select an empirical antibiotic regimen on the basis of the severity of the infection and the likely etiologic agent(s) (B-II). Therapy aimed solely at aerobic Gram-positive cocci may be sufficient for mild-to-moderate infections in patients who have not recently received antibiotic therapy (A-II). Broad-spectrum empirical therapy is not routinely required but is indicated for severe infections, pending culture results and antibiotic susceptibility data (B-III). Take into consideration any recent antibiotic therapy and local antibiotic susceptibility data, especially the prevalence of methicillin-resistant *S. aureus* (MRSA) or other resistant organisms. Definitive therapy should be based on both the culture results and susceptibility data and the clinical response to the empirical regimen (C-III). 11. There is only limited evidence with which to make informed choices among the various topical, oral, and parenteral antibiotic agents. Virtually all severe and some moderate infections require parenteral therapy, at least initially (C-III). Highly bioavailable oral antibiotics can be used in most mild and in many moderate infections, including some cases of osteomyelitis (A-II). Topical therapy may be used for some mild superficial infections (B-I). 12. Continue antibiotic therapy until there is evidence that the infection has resolved but not necessarily until a wound has healed. Suggestions for the duration of antibiotic therapy are as follows: for mild infections, 12 weeks usually suffices, but some require an additional 12 weeks; for moderate and severe infections, usually 24 weeks is sufficient, depending on the structures involved, the adequacy of debridement, the type of soft-tissue wound cover, and wound vascularity (A-II); and for osteomyelitis, generally at least 46 weeks is required, but a shorter duration is sufficient if the entire infected bone is removed, and probably a longer duration is needed if infected bone remains (B-II). 13. If an infection in a clinically stable patient fails to



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Diagnosis and treatment of diabetic foot infections [continued].

respond to 1 antibiotic courses, consider discontinuing all antimicrobials and, after a few days, obtaining optimal culture specimens (C-III). 14. Seek surgical consultation and, when needed, intervention for infections accompanied by a deep abscess, extensive bone or joint involvement, crepitus, substantial necrosis or gangrene, or necrotizing fasciitis (A-II). Evaluating the limb's arterial supply and revascularizing when indicated are particularly important. Surgeons with experience and interest in the field should be recruited by the foot-care team, if possible. 15. Providing optimal wound care, in addition to appropriate antibiotic treatment of the infection, is crucial for healing (A-I). This includes proper wound cleansing, debridement of any callus and necrotic tissue, and, especially, off-loading of pressure. There is insufficient evidence to recommend use of a specific wound dressing or any type of wound healing agents or products for infected foot wounds. 16. Patients with infected wounds require early and careful follow-up observation to ensure that the selected medical and surgical treatment regimens have been appropriate and effective (B-III). 17. Studies have not adequately defined the role of most adjunctive therapies for diabetic foot infections, but systematic reviews suggest that granulocyte colony-stimulating factors and systemic hyperbaric oxygen therapy may help prevent amputations (B-I). These treatments may be useful for severe infections or for those that have not adequately responded to therapy, despite correcting for all amenable local and systemic adverse factors. 18. Spread of infection to bone (osteitis or osteomyelitis) may be difficult to distinguish from noninfectious osteoarthropathy. Clinical examination and imaging tests may suffice, but bone biopsy is valuable for establishing the diagnosis of osteomyelitis, for defining the pathogenic organism(s), and for determining the antibiotic susceptibilities of such organisms (B-II). 19. Although this field has matured, further research is much needed. The committee especially recommends that adequately powered prospective studies be undertaken to elucidate and validate systems for classifying infection, diagnosing osteomyelitis, defining optimal antibiotic regimens in various situations, and clarifying the role of surgery in treating osteomyelitis (A-III).

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Adjuvant hyperbaric oxygen therapy (HBO2) for treatment of necrotizing fasciitis reduces mortality and amputation rate.

Undersea Hyperb Med. 2005 Nov-Dec;32(6):437-43.

Escobar SJ, Slade JB Jr, Hunt TK, Cianci P.

OBJECTIVE: A retrospective analysis of 42 patients with necrotizing soft tissue infections treated with adjunctive HBO2 to ascertain efficacy and safety. Overall mortality was 11.9% and morbidity 5%. **SUMMARY**

BACKGROUND DATA: Necrotizing soft tissue infections have historically high rates of mortality and morbidity, including amputation. Common misconceptions that prevent widespread use of adjunctive HBO2 for this diagnosis include delays to surgery, increased morbidity, and significant complications. **METHODS:** Forty-two consecutive patients (average age 56.1) with necrotizing fasciitis presenting to a major referral center were treated with adjunctive HBO2 as part of an aggressive program of surgery, antibiotics, and critical care. Involved areas included the lower abdomen (15 patients), thigh and perineum (9 patients), flank (4 patients), lower leg (3 patients), and arm, shoulder, and axilla (2 patients). Co-morbidities included diabetes mellitus, chronic renal failure, intravenous drug abuse, peripheral vascular disease, and malignancy. **RESULTS:** Mortality was 11.9% (5 patients). Both amputations (a finger and a penis), occurred prior to transport to our facility. The average number of surgical debridements was 2.8 per patient; 1.25 performed prior to the start of HBO. The infectious process was controlled after an average of 7 HBO2 treatments were administered to ensure successful wound closure. Complications consisted of only mild ear barotrauma in 3 patients (7%), and confinement anxiety in 17 (41%) but did not prevent treatment. **CONCLUSION:** Compared to national reports of outcomes with "standard" regimens for necrotizing fasciitis, our experience with HBO2, adjunctive to comprehensive and aggressive management, demonstrates reduced mortality (34% v. 11.9%), and morbidity (amputations 50% v. 0%). The treatments were safe and no delays to surgery or interference with standard therapy could be attributed to HBO2.

Synergy of HBO2 and a local antibiotic carrier for experimental osteomyelitis due to Staphylococcus aureus in rats.

Undersea Hyperb Med. 2004 Winter;31(4):407-16

Mendel V, Simanowski HJ, Scholz HCh.

A standard rat model of Staphylococcus aureus-induced osteomyelitis was used to compare the effect of HBO2, a local antibiotic carrier (gentamicin-containing collagen sponge) and the combination of HBO2 with a local antibiotic carrier. For the induction of osteomyelitis, a defined Staphylococcus aureus suspension was inoculated into the medullary cavity. Arachidonic acid was used as sclerosing agent. With that procedure an infection rate of more than 95 percent was attained. Prior to the treatment interval surgical debridement of the soft-tissue infection was performed. In the control group the extent of infection was 4.9×10^6 CFU x g(-1) of tibial bone three weeks following implantation of organisms. Subsequent to debridement of the soft tissue infection, the bone infection decreased slightly with a value of 3.7×10^6 CFU x g(-1) of tibial bone at the end of the experiment. HBO2 as single-agent therapeutic reduced the infection to 1.7×10^5 CFU x g(-1) of tibial bone. Due to its high local antibiotic level, the gentamicin-collagen sponge achieved a reduction in organisms to 1.4×10^2 CFU x g(-1) of tibial bone. The effect was most marked using a 4-wk combination therapy with local application of the gentamicin-containing sponge and additional treatment with HBO2. In 9 of 11 animals, bacteria were no longer detectable in the processed bone substance. Each of the treatment modalities resulted in a significant therapeutic effect. No complete healing of the infection was achieved with the flexible collagen sponge characterized by pronounced and rapid release of gentamicin. In combination with hyperbaric oxygen an additive effect was attained and thus a significant improvement of treatment.

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The effect of hyperbaric oxygen therapy on the bout of treatment for soft tissue infections.

J Infect. 2004 May;48(4):330-3

Sugihara A, Watanabe H, Oohashi M, Kato N, Murakami H, Tsukazaki S, Fujikawa K.

OBJECTIVES: Hyperbaric oxygen (HBO) therapy is often combined with antibiotic therapy for infections such as gas gangrene and osteomyelitis. Although numerous investigations have been undertaken to assess the effect of adjunctive HBO therapy on the treatment of infections, the bout of treatment has not been referred in the previous investigations. The purpose of this retrospective study was to evaluate the efficacy of HBO therapy on the bout of treatment for soft tissue infections. **PATIENTS AND METHODS:** In the period between 1994 and 2001, we treated 23 patients with soft tissue infections. Nine patients were treated with antibiotic chemotherapy alone, and 14 patients were treated with a combination of antibiotic chemotherapy and HBO therapy. The mean bout of treatment was compared between these two groups. **RESULTS:** The mean bout treated with a combination of antibiotic and HBO was significantly shorter than that with antibiotic alone. **CONCLUSION:** Our result indicates that HBO therapy combined with antibiotic therapy is able to shorten the bout of treatment for soft tissue infections. Therefore, we recommend HBO therapy combined with antibiotic therapy for soft tissue infections.

Hyperbaric oxygen treatment of postoperative neurosurgical infections.

Neurosurgery. 2002 Feb;50(2):287-95; discussion 295-6

Larsson A, Engström M, Uusijärvi J, Kihlström L, Lind F, Mathiesen T.

OBJECTIVE: To evaluate the clinical usefulness of hyperbaric oxygen (HBO) therapy for neurosurgical infections after craniotomy or laminectomy. **METHODS:** The study involved review of medical records, office visits, and telephone contacts for 39 consecutive patients who were referred in 1996 to 2000. Infection control and healing without removal of bone flaps or foreign material, with a minimum of 6 months of follow-up monitoring, were considered to represent success. **RESULTS:** Successful results were achieved for 27 of 36 patients, with a mean follow-up period of 27 months (range, 6-58 mo). One patient discontinued HBO therapy because of claustrophobia, and two could not be evaluated because of death resulting from tumor recurrence. In Group 1 (uncomplicated cranial wound infections), 12 of 15 patients achieved healing with retention of bone flaps. In Group 2 (complicated cranial wound infections, with risk factors such as malignancy, radiation injury, repeated surgery, or implants), all except one infection resolved; three of four bone flaps and three of six acrylic cranioplasties could be retained. In Group 3 (spinal wound infections), all infections resolved, five of seven without removal of fixation systems. There were no major side effects of HBO treatment. **CONCLUSION:** HBO treatment is an alternative to standard surgical removal of infected bone flaps and is particularly useful in complex situations. It can improve outcomes, reduce the need for reoperations, and allow infection control without mandatory removal of foreign material. HBO therapy is a safe, powerful treatment for postoperative cranial and spinal wound infections, it seems cost-effective, and it should be included in the neurosurgical armamentarium.