Pneumothorax in Substance Abuse

To the Editor:

A pulmonary complication not mentioned by Glasroth et al ("The Impact of Substance Abuse on the Respiratory System," Chest 1987; 91:596-602) is the iatrogenically-created traumatic pneumothorax.

Traumatic pneumothorax is a common complication in IV drug abusers who utilize the "pocket shot," the central approach to the internal jugular vein. Fourteen patients who sustained a total of 16 pneumothoraces (including one tension pneumothorax) were recently reported by Wisdom et al.1 Success with CASP (catheter aspiration of a simple pneumothorax) may be the treatment for any simple pneumothorax.

Donald Forester, M.D.
Chief, Section on Emergency Medicine
Mount Vernon Hospital
Mount Vernon, NY

REFERENCE

Necrotizing Soft Tissue Infections and Adjunctive Hyperbaric Oxygen

To the Editor:

Norwood and Civetta, in their review on sepsis (Chest 1987; 92:137-44), regarding the management of Clostridial gas gangrene, profess that "appropriate antibiotic therapy and radical surgical debridement must be initiated based on the clinical diagnosis alone." The authors failed to mention an important advance in the treatment of Clostridial infections cited in one of their references: namely, hyperbaric oxygen therapy.2 The emphasis of that reference, which reviews 20 years of clinical experience in treating Clostridial gas gangrene with adjunctive hyperbaric oxygen, is that early, radical life-saving surgery (eg, high amputation) is not necessary when hyperbaric oxygen therapy is available to set up an oxygen barrier against the spread of disease at the advancing disease margin. Early combined therapy with antibiotics, conservative debridement and fasciotomies, and hyperbaric oxygen has been shown to reduce mortality and morbidity in this disease.3 My experience in treating two cases of Clostridial infection with adjunctive hyperbaric oxygen has been favorable. I also am impressed that this modality might be helpful in some of the commoner mixed aerobic-anaerobic necrotizing soft tissue infections mentioned by Norwood and Civetta.

From 1981 through 1986, I treated 16 necrotizing soft tissue infections including ten cases of non-Clostridial fasciitis with myonecrosis, four cases of pure necrotizing fasciitis and two cases of pure Clostridial myonecrosis. Bacterial isolates averaged 2.8 organisms per case, 56 percent of which were anaerobes in nonClostridial cases.

The high mortality rate of these infections (up to 75 percent) in recent series, probably owing to the presence of underlying disease states, has been reviewed by Bakker.4 My series was no exception with respect to the presence of underlying host factors. Of the 16 patients, 11 had diabetes, six had peripheral vascular disease, two were parenteral drug abusers and one had end-stage renal disease. Average age was 56 years (range 18 to 89).

Treatment utilizing broad spectrum aerobic and anaerobic antibiotic coverage, surgery (average 2.7 procedures per patient) and hyperbaric oxygen given at least once daily (average 18 treatments) produced favorable results: of the 16 patients five recovered completely, three died and six had amputations (three below the knee.) All of the amputations occurred in patients with peripheral vascular disease. Both Clostridial cases survived without amputation and retained useful function of the involved limbs (foot and arm). Table 1 shows the treatment outcome related to the time of initiation of combined modality therapy from the time of diagnosis. Delays in either surgery or initiation of hyperbaric oxygen therapy were associated with all of the deaths (all patients received antibiotic therapy early in their course).

Clinical experience in treating polymicrobial, nonClostridial necrotizing soft tissue infections with adjunctive hyperbaric oxygen is still anecdotal, although there are good theoretic reasons for its use based on relief of local tissue hypoxia,3 differing oxygen susceptibilities of bacteria in these infections5 and the oxygen dependence of leukocyte phagocytic function.5 A recent report shows the benefit of hyperbaric oxygen in the treatment of experimental polymicrobial intra-abdominal sepsis.6 I agree with Bakker6 that it is beneficial when treatment is applied adjunctive to a course of antibiotics and early, adequate surgical debridement of the wounds.

While hyperbaric oxygen is not a substitute for surgery or antibiotics in the treatment of either Clostridial or nonClostridial necrotizing soft tissue infections, it is available in many areas where physicians practice critical care medicine and deserves at least a brief mention in discussions of the therapy of these infections as a possible adjunctive treatment.

Claude L. Zanetti, M.D.,
Director, Pulmonary and Hyperbaric Medicine,
Edgewater Hospital,
Chicago

Table 1—Treatment Outcome Related to Initiation of Therapy

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<thead>
<tr>
<th>Treatment</th>
<th>No. who survived</th>
<th>No. who died</th>
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<tr>
<td>Surgery delayed beyond 24 hrs.</td>
<td>4</td>
<td>3</td>
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<tr>
<td>or Hyperbaric oxygen therapy initiated after 48 hrs.</td>
<td>9</td>
<td>0</td>
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\( x^2 = 4.67, p < .05 \)

REFERENCES
1 Hart GB, Lam RC, Strauss MB. Gas gangrene. J Trauma 1983; 23: 991-1000