Medical Management of Acute Appendicitis: A Case Report

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The standard treatment for acute appendicitis is appendectomy, but in isolated environments where there are no surgical capabilities, medical management is required. This case illustrates how acute appendicitis in a remote location can be managed medically until surgical resources become available.

Case Report

A 22-year-old man serving onboard an underway US Navy submarine came to the medical department complaining of nausea, chills, and right lower quadrant abdominal pain that woke him from sleep. He was afebrile, exhibited peritoneal signs including tenderness over McBurney's point, and had a white blood count of 11,200/μL. The patient's condition was diagnosed as acute appendicitis, and intravenous metronidazole and gentamicin were administered in accordance with an established treatment protocol. A medical evacuation (MEDEVAC) was requested. The patient continued on intravenous antibiotic therapy, and his condition was monitored with serial abdominal examinations.

Three days after onset of symptoms, the patient arrived at the hospital for evaluation. His temperature was 98.5°F, abdominal findings were unchanged, and his white cell count was 9,700/μL. During an open appendectomy, acute suppurative appendicitis was found. Antibiotics were continued postoperatively, and the patient was released from the hospital on the second postoperative day after an uncomplicated hospital course.

Discussion

The use of antibiotics to treat appendicitis as a bridge to surgery has been well documented. A retrospective case review of 9 US Navy men on a submarine who had appendicitis treated at sea with various antibiotic protocols found good response to treatment in all cases.[1] This issue has also been addressed in pediatric patients. A study of 695 children showed that preoperative antibiotic treatment can be used to delay surgery. The incidence of complications in children operated on within 6 hours of diagnosis was no different from those given antibiotics and undergoing surgery 6 to 18 hours after admission.[2]

Although controversial, some have argued that antibiotics alone are sufficient for treatment of acute appendicitis. In 1959, Coldrey[3] published a series describing 471 patients whose appendicitis was treated with parenteral antibiotics. The recurrence rate requiring appendectomy was less than 20%, and the rate of interval appendectomy was 16%. One death occurred in an elderly patient who was considered to be a poor surgical candidate. More recently, a small prospective randomized controlled trial of 40 patients whose appendicitis was treated with either antibiotics or appendectomy found that antibiotics were as effective as surgery in treating the acute event. The antibiotics-only group, however, had a 35% recurrence of appendicitis during the 17 months of follow-up observation.[4]

Adequate antibiotic treatment is essential when medical treatment of appendicitis is required. In a series of 2,522 cases, peritoneal fluid cultures were obtained at appendectomy. The most common organism isolated was *Escherichia coli*, and the next most common were *Enterococcus* and other *Streptococcus* species. *Pseudomonas*, *Klebsiella*, and *Bacteroides* species were less commonly isolated.[5] Accordingly, antibiotics should be selected that are effective at combatting both aerobic and anaerobic bacteria; many effective regimens exist.

Traditionally, triple antibiotics (ampicillin-gentamicin-clindamycin) or an aminoglycoside with clindamycin or metronidazole have been used for the treatment of appendicitis. Numerous trials have

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been performed, however, that prove the efficacy of select second- and third-generation cephalosporins compared with aminoglycoside regimens in the treatment of complicated appendicitis. Combinations studied include ceftazidime-metronidazole, cefotaxime-clindamycin, and cefepime-metronidazole.[6] These regimens avoid the disadvantages of aminoglycosides, namely, the risk of toxicity if used for longer than 2 or 3 days, and the need to monitor serum drug levels.

Conclusion

Both this case and review of the medical literature illustrate how acute appendicitis may safely be treated medically when the patient is located in an environment remote from surgical care. Although medical management is not a substitute for surgery, initial management with broad-spectrum antibiotics can complement surgical care. Lessons learned from this case can be applied to a variety of military and civilian situations in remote areas with no surgical capabilities.

References

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