

South Africa needs to embrace the role of antibiotics in the treatment of acute uncomplicated appendicitis

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There has been a sea change in the management of acute appendicitis over the last quarter of a century. This arose from the realisation that with early imaging and clinical scoring systems appendicitis could be diagnosed early and the pathophysiology reversed by the timely and appropriate administration of intravenous antibiotics. There has been a growing body of literature attesting to the efficacy of antibiotic therapy in the treatment of acute uncomplicated appendicitis.^{1,2} No less an organisation than the American College of Surgeons has described antibiotic treatment of acute uncomplicated appendicitis as an “accepted first-line therapy.”³ The American college came to this conclusion based on a number of randomised trials. Most authors on the topic concur with the college that antibiotic treatment is “not inferior” to appendectomy as based on outcomes, measured up to thirty days.^{1,2} This has been supported by many clinical audits and reports as well as a number of well-constructed randomised trials.

Non-operative treatment offers many advantages. There is a direct cost saving for the system as the use of operating facilities and laparoscopic equipment is reduced. The main driver of cost, especially in the private sector is theatre time. Although laparoscopic surgery is safe and has a negligible mortality, there are still complications which must be considered. These include wound sepsis as well as later complications such as adhesions and hernias. Antibiotic therapy eliminates the risk of these complications, as no surgery is undertaken. The precedence for a conservative approach in the use of antibiotics as first-line therapy in other abdominal emergencies, such as in acute diverticulitis, has been well established.⁴ In acute diverticulitis antibiotic therapy may abort acute low-grade inflammation and help avoid surgery, which traditionally involved a morbid stoma. Once the acute inflammatory condition has been resolved, a more measured approach to the diseased colon can be considered and surgery if required, can be performed on an elective basis in a more controlled setting. This approach is immensely beneficial in reducing the need for emergency

surgery during irregular hours. The same benefits can accrue to the management of acute uncomplicated appendicitis.

Despite this, South African surgeons have been reluctant to adopt this non-operative strategy. Although data is lacking especially from private practice, it would appear that most South African surgeons still feel that surgery is the treatment of choice. In the state sector the data seems to suggest that operative approaches are still favoured.⁵⁻⁸ This is likely due to the high rate of complicated appendicitis seen in the state sector, often attributed to late presentation.^{7,9} This approach, however, is not in keeping with modern trends and we as a surgical community need to introspect, as to why this is the case. Common to both systems, it is apparent that South Africa faces an overwhelming burden of surgical disease and has severe resource constraints. The differences between state and private practice are real, and need to be taken into consideration as a one size fits all approach is hardly likely to be effective.

In the state sector, implementing protocols to identify acute appendicitis early and then managing it non-operatively will help reduce the burden on the state sector surgical services. Reducing the demand for operating room resources and anaesthesia for appendicitis would allow the reallocation of these resources. Using modern telecommunications such as the Vula app would allow for surgical staff at the referral institutions to manage acute appendicitis remotely, whilst ensuring patient safety. Although imaging modalities such as CT scans or ultrasound are often used in the differentiation between uncomplicated and complicated appendicitis, basic blood work and septic markers have shown a promising role in differentiating between these two different pathologies.^{10,11} These basic bloods are available at the district level with results communicable to the specialist team. Modern telecommunications act as a force multiplier allowing specialist-based management of patients at remote venues. This has been highly effective in burn care and paediatric surgery in the KwaZulu-Natal Province, and it would be relatively straightforward to apply this to the management of acute uncomplicated appendicitis. The use


of clinical scoring systems and protocols has been shown to improve the management of acute appendicitis by directing clinicians down safe pathways of care. Adopting a non-operative approach to acute uncomplicated appendicitis offers many benefits to an already over-burdened state sector and with modern telecommunications we should be able to drive this safely and effectively.

In the private sector, the applicability of non-operative treatment of acute uncomplicated appendicitis is even more obvious. Generally, imaging is readily available, and patients can be safely observed in environments which are enabled and supported by modern telecommunications and electronic health records. Several private institutions have rolled out electronic medical record systems which can be accessed via cloud-based systems. These systems allow for remote viewing of observations, blood results and imaging. Non-operative management of acute uncomplicated appendicitis is very feasible in such a setting. It is now well accepted that patients must be offered the choice of a non-operative approach in the appropriate setting.

It would be remiss to discuss the benefits of non-operative management of uncomplicated acute appendicitis without being aware of and addressing some of the inherent concerns with this new approach. It is routine practice to send off the appendix specimen for histology. In the setting of a non-operative approach, this would require an interval appendectomy, with the added benefit of decreasing recurrence, which would again place a burden on theatre time. However, with low rates of pre-malignant conditions seen in our population, this practice may require review, utilising a case-by-case shared decision-making process with patients to decide on interval appendectomy versus surveillance.^{12,13} Another concern to note is the failure rate of the antibiotic first approach, however this must form part of the managing surgeon's discussion with the patient on this approach, leading to shared decision making.¹⁴

The evidence is increasingly clear that selected cases of acute uncomplicated appendicitis can be treated effectively and safely with antibiotic therapy. This reduces the need for surgery, which is a major driver of expense and which is associated with a definite risk of acute and more worrying, long-term complications. It also allows for greater patient autonomy around the decision for surgery in a non-emergency setting. Although the contexts of state and private systems differ, both systems have the infrastructure to deliver non-operative management of acute uncomplicated appendicitis in selected patients.

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