Surveillance Colonoscopy after Appendicectomy in Patients over the Age of 40: Targeted Audit of Outcomes and Variability in Practice

Charalampos Seretis*, Jagjit Gill, Paul Lim, Lucy Archer, Fotios Seretis, Shuker Yahia

Department of General Surgery, George Eliot Hospital NHS Trust, Warwickshire, United Kingdom

*Corresponding author:

Charalampos Seretis, MD

Department of General Surgery George

Eliot Hospital NHS Trust Nuneaton,

Warwickshire, West Midlands CV10 7DJ

United Kingdom

E-mail: charalampos.seretis@geh.nhs.uk

Rezumat

Colonoscopie de control după apendicectomie la pacienții cu vârsta peste 40 de ani: audit ținut al rezultatelor și variabilitate în practică

Introducere: Dovezi recente sugerează necesitatea de a efectua o colonoscopie de control la pacienții cu vârsta peste 40 de ani care suferă apendicectomie pentru apendicită acută, având în vedere riscul mai mare de apariție a unei tumori de colon subiacente. După observarea anecdotică a unei variabilități substanțiale în ceea ce privește implementarea acestor recomandări de către echipele chirurgicale din serviciul de urgență, am efectuat un audit clinic cu privire la ratele noastre de urmărire endoscopică relevante pentru a identifica modalități pentru îmbunătățirea practicii noastre.

Materiale și metode: Am efectuat o revizuire retrospectivă a înregistrărilor electronice ale tuturor pacienților cu vârsta peste 40 de ani supuși apendicectomiei pentru apendicită acută, pe o perioadă de 3 ani în instituția noastră, evaluând ca rezultat primar performanța efectivă a unei colonoscopii de control și constatările endoscopice identificate.

Rezultate: Rezultatele noastre au demonstrat că mai mult de 80% dintre pacienții noștri nu au beneficiat de colonoscopia de control, așa cum sugerează dovezile actuale. În plus, în ceea ce privește subspecializarea echipei chirurgicale principale, se pare că echipele non-colorectale au avut o complianță mai scăzută în ceea ce privește organizarea controlului endoscopic, în comparație cu echipa specializată pe patologia colorectală.

Concluzii: Echipele chirurgicale de urgență trebuie să fie educate

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în continuare cu privire la recomandările practice actuale privind urmărirea endoscopică adecvată după efectuarea apendicectomiei pentru apendicita acută. Înființarea unor strategii de îngrijire postoperatorie dedicate, precum și a unor ghiduri clare de către Societățile de chirurgie gastro-intestinală / de urgență ar fi de mare ajutor în această direcție.

Cuvinte cheie: apendicită, cancer, colonoscopie, polip

Abstract

Introduction: Recent evidence suggests the need to proceed with a surveillance colonoscopy in patients above the age of 40 years who undergo appendicectomy for acute appendicitis, given the higher risk of an underlying colonic tumor. After anecdotally observing a substantial variability in terms of adaptation of these recommendations by the on-call surgical teams, we performed a clinical audit regarding our relevant endoscopic follow-up compliance rates to identify areas for improvement of our practise.

Materials & Methods: We performed a retrospective review of the electronic records of all patients above 40 years who had appendicectomy for acute appendicitis within a 3-year period in our institution, assessing as primary outcome the actual performance of a follow-up colonoscopy and the detected endoscopic findings.

Results: Our results demonstrated that more than 80% of our patients did not have an endoscopic follow-up, as suggested by the current evidence. In addition, with respect to the subspecialisation of the parent surgical team, it seems that non-colorectal teams had lower compliance regarding the arrangement of endoscopic surveillance, when compared to specialist colorectal team.

Conclusions: Emergency surgical teams need to be further educated with respect to the current practise recommendations concerning the appropriate endoscopic follow-up after the performance of appendicectomy for acute appendicitis. Establishment of dedicated bundles of postoperative care, as well as clear relevant guidance from the gastrointestinal/emergency surgery societies would be of great value in this direction.

Keywords: appendicitis; cancer; colonoscopy; polyp

Introduction

Acute appendicitis is one of the most common surgical emergency procedures, affecting the whole range of pediatric and adult general population (1). With its onset being related to the obstruction of the appendiceal orifice and/or lumen, the underlying problems could be as simple as impacted fecoliths or benign lymphoid hyperplasia to other sinister causes such as cecal tumors (2). The latter is of great importance and mandates the consideration of further surveillance in the postoperative period, usually in the form of direct endoscopic

assessment with colonoscopy or potentially computed tomography colonography (CTC). Under this notion, a number of retrospective studies have investigated the possibility of increased risk of colonic malignancy in older adult patients, who are presenting with acute appendicitis as surgical emergencies. Despite the variability in terms of population, pre-operative imaging (routine use of computed tomography for diagnosis – CT) and operative technique (open vs laparoscopic), there is substantial evidence to clearly suggest that patients above 40-45 years of age should have a surveillance colonoscopy after the

performance of appendectomy (3-5).

Due to surgical subspecialisation though, and in lack of relevant international guidelines, there is a great possibility that post-appendectomy colonoscopic surveillance in older adults might not be routinely requested by non-colorectal emergency surgeons. The latter is of great importance, as it represents a barrier on what could become a straightforward bundle of care, having a significant clinical impact to the patients and potential medicolegal implications for clinicians and hospital trusts. Herein, we performed a retrospective review of our clinical practise in our institution, including all adult patients older than 40 years who had undergone appendectomy over a 3-year period, aiming to assess our compliance with the current relevant post-procedural endoscopic surveillance recommendations and identify areas for clinical improvement.

Materials and Methods

We performed a retrospective study of all patients above the age of 40 years who underwent appendectomy as surgical emergency admissions in our institution over a 3-year period (April 2016 - March 2019), using our dedicated electronic theatre records software. After the identification of these cases, we excluded the patients whose histology revealed a primary appendiceal tumor, as well as the cases in which an intraoperative decision to convert the appendectomy to a right hemicolectomy was taken due to detection of an obvious cecal mass. We also excluded all patients who had undergone a colonoscopy for another reason within 12 months prior to their appendectomy. Subsequently, we reviewed the electronic records of this final pool of patients addressing the following: use of pre-operative CT scan, performance of laparoscopic or open appendectomy, admission under the care of a colorectal or non-colorectal attending surgeon and finally performance of surveillance colonoscopy after the appendectomy with review of the relevant endoscopic findings. No ethic committee approval was required for the

study due to its retrospective nature and its non-invasive nature.

Results

A total of 410 patients had undergone appendectomy during the study period in our institution; 83 patients were above the age of 40 years and hence (39 females/44 males, age span 41-88 years with mean age 61.2 years) met our set criteria and were included in the final analysis. With respect to the operative approach, 63/83 patients had a laparoscopic appendectomy, 5/83 a laparoscopic converted to open procedure and 15/83 had an upfront open operation. Regarding the preoperative assessment with cross-sectional imaging, 66/83 patients underwent an abdominopelvic CT scan prior to the procedure as part of the diagnostic pathway, confirming the presence of acute appendicitis, while the remaining 17/83 patients were scheduled for upfront diagnostic laparoscopy due to high clinical suspicion of appendicitis. Of note, none of the performed CT scans suggested the presence of cecal neoplasia related to the acute presentation of appendicitis. As far as the subspecialty of the parent emergency admitting team, 48/83 patients were admitted under the care of an attending surgeon with subspecialisation in colorectal surgery and the remaining 35/83 were admitted under the care of a non-colorectal emergency general surgery attending.

With respect to the performance of an outpatient surveillance colonoscopy after the discharge of the patients, only 14/83 (16.9%) patients were followed-up endoscopically, with the majority of these patients (11/14, 78.8%) having been admitted under the care of specialised colorectal surgeons. From these colonoscopies, none revealed the presence of a malignant colonic tumor and only two detected the presence of a neoplastic process in the cecum (tubular adenomas with low grade dysplasia on both occasions). Other colonic pathologies detected in the remaining colonoscopies showed diverticular

disease in the left colon, hyperplastic polyps in the transverse colon & rectum and sub-mucosal lipoma in the ascending colon.

Discussion

There is mounting evidence supporting the routine use of surveillance colonoscopy post the performance of appendectomy as a way to rule out the presence of a neoplastic lesion in the cecum, which could have been a primary trigger for the development of appendicitis per se (6). Furthermore, previous studies have demonstrated a higher risk of general colorectal neoplasias in older adults presenting with acute appendicitis, standing for another indication to proceed with surveillance colonoscopy post appendectomy (7,8). However, up to date there are no formal international guidelines to formalise the relevant recommended clinical pathway and therefore there is substantial variability in terms of the post-operative follow-up of these patients. Our anecdotal experience as body of authors was that there was limited compliance of our clinical practise with the currently recommended endoscopic follow-up in this group of patients and this was the rationale behind this audit.

Summarising our results, less than one in five of the patients above the age of 40 years who had appendectomy in our institution, underwent a follow-up colonoscopy, with almost 80% of these surveillance colonoscopies having been requested by teams of specialised colorectal surgeons. Although no cancerous lesion was detected in the performed endoscopies, our institutional limited compliance with the current recommendations resulted in a small group of patients who were actually followed up and hence these results should be interpreted with caution. However, even in our small series, in one of the performed follow-up colonoscopies, a cecal polyp was detected close to the appendiceal orifice.

To the best of our knowledge, this is the first report in the literature to document difference in terms of the endoscopic follow-up

of this group of patients depending on the sub-specialisation of the admitting general surgeon, fact which highlights the need for dissemination of relevant clinical updates on common surgical emergencies such as acute appendicitis. Regarding our institutional practise, we aim to establish a formal bundle of postoperative care in a format of discharge checklist for this group of patients and we endeavour to re-assess our clinical practise after a period of its implementation. We believe though a major step towards consolidating endoscopic follow-up pathways for older adults who have undergone appendectomy would be performed when the international gastro-intestinal and emergency surgery societies publish formal relevant guidelines, fact which will help substantially disseminate the existing clinical information to wider target groups of general surgeons.

Author's Contributions

CS and JG contributed to the literature research and writing of manuscript. PL, LA and JG contributed to the acquisition of data and analysis of results. FS and SY edited and critically revised the submitted manuscript. All authors have reviewed and approved the manuscript in its current form; they also confirm that the manuscript has neither been published before nor it is under review for publication by another journal.

Conflict of Interests Statement

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Ethical Committee Approval

Not applicable.

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