Variability in management of T1 colorectal cancer in Wales

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ABSTRACT

INTRODUCTION The management of T1 colorectal cancer is controversial. Surgical resection should offer cure in the majority of patients and can stage lymph nodes accurately. Nevertheless, there can be significant associated morbidity and it potentially risks overtreating the patient. Endoscopic/local excision has significantly reduced morbidity but risks undertreating undetected metastatic lymph nodes, thereby compromising oncological outcomes. The aim of this study was to review the practice across Wales over a two-year period.

METHODS Data on T1 tumours for the period of 2009–2011 were collected from the Cancer Network Information System Cymru.

RESULTS A total of 161 patients were diagnosed as having T1 colorectal cancer (without prior neoadjuvant treatment). The median age was 68 years (range: 14–91 years) and 66% of the patients were male. Forty-eight (30%) of these tumours were screen detected. There were 112 colonic and 49 rectal tumours. Ninety-five patients with colonic tumours (85%) underwent major surgical resections, 51% of which were laparoscopic. Forty patients with rectal cancers (82%) underwent major surgical resection and 45% of these procedures were laparoscopic. The rest of the patients underwent local excision in the form of endoscopic polypectomy or transanal resection.

CONCLUSIONS This study demonstrates that there is no consensus in the management of T1 disease across Wales. With the advent of screening and the development of more sophisticated endoscopic techniques, the decision of how to treat T1 colorectal cancer will become a more regular challenge for the colorectal multidisciplinary team. The treatment needs standardisation. For now, however, this balance of risk will need to be made on an individual patient basis.
The aims of this study were to review the incidence and management of T1 CRC in Wales over a two-year period.

Methods

All patients diagnosed with T1 CRCs were identified in the bowel cancer audit in Wales between April 2009 and March 2011. Patients who had received prior neoadjuvant chemotherapy and/or radiotherapy were excluded. Data had been collected prospectively using the Cancer Network Information System Cymru (CaNISC), the online information system for all patients with cancer treated across Wales. Data collected included patient demographics, hospital site, site of tumour, whether it was screen detected or symptomatic and whether the patient underwent a major surgical resection (defined as a bowel resection with associated lymphadenectomy) or a local excision (endoscopic polypectomy, TART and TEMS), lymph node harvest, hospital stay and mortality.

Results

Between April 2009 and March 2011, 185 patients were diagnosed as having T1 CRC in Wales. The median patient age was 68 years (range: 14–91 years) and 66% were male. Forty-eight (30%) of these tumours were screen detected.

Twenty-four patients with T1 tumours were excluded as they had received neoadjuvant chemotherapy and/or radiotherapy and the recorded histopathological stage might therefore have been modified by the chemoradiotherapy.

Of the 161 patients included in the final analysis, 112 had tumours that originated in the colon and 49 in the rectum (Fig 1). Right-sided colon tumours were defined as those arising from the caecum to the transverse colon, left-sided ones as those arising from the splenic flexure to the rectosigmoid. Almost a third of the tumours were rectal.

Of the 112 patients with colonic cancer, 95 (85%) underwent major surgical resection and 17 (15%) underwent local excision. The variation in the type of treatment is shown in Figure 2. Eleven patients required a stoma and in four patients this was permanent. Of those treated by major surgical excision, 48 operations (51%) were performed laparoscopically, 45 (47%) were open procedures and in 2 cases (2%) access was not recorded.

The variation in the management of T1 rectal cancers is shown in Figure 3. Forty patients (82%) with T1 rectal cancers underwent major surgical resection. Twenty-six (53%) required a stoma and in eleven patients (42%) this was permanent. Of the major surgical resection group, 22 patients (55%) had an open procedure and 18 (45%) had a laparoscopic procedure.
The variation in treatment type across the 13 different multidisciplinary teams (MDTs) is shown in Figure 4. There was considerable variation across the different MDTs.

Eleven (9%) of the patients who underwent major surgical resection for T1 CRC had positive lymph node metastases. The median lymph node yield was 10 (range: 0–35). In 78 patients (61%), the lymph node harvest was lower than the 12 recommended by the National Institute for Clinical Excellence (which later became the National Institute for Health and Care Excellence [NICE]).10

Overall, the median hospital stay was 6 days (range: 0–45 days). All of the patients who underwent local excisions were discharged on the same day. There were four deaths, all of which were in the major surgical resection group. One patient underwent an abdominoperineal resection of the rectum (APR) and died on day 4 from peritonitis secondary to perforation of the colon. Two patients underwent anterior resection of the rectum; one died from a myocardial infarction on day 2 and the other from complications of an anastomotic leak on day 10. The fourth patient underwent a right hemicolectomy and died on day 14 owing to an ischaemic stroke secondary to atrial fibrillation.

Discussion

This study has shown that there was no consensus in the management of T1 CRC across Wales. Practice varied between MDTs in the use of major surgical resection and local excision. We believe that this finding is consistent with the practice among the rest of the UK1 and probably reflects the lack of national guidelines in this area.

Our study has also shown that 85% and 82% of patients with T1 tumours arising in the colon and rectum respectively underwent major surgical resection. This suggests that there may be reluctance among colorectal surgeons in Wales to perform local excision.

However, this study has also highlighted the significant life changing complications that major colorectal surgery can lead to. Patients with rectal tumours traditionally undergo either an anterior resection of the rectum or an APR. Not only are these patients prone to the risks of major surgery (eg anaesthetic related problems, wound complications, bleeding, anastomotic leak) but they may well develop long-term functional issues. A significant proportion of patients who have undergone anterior resection of the rectum develop poor rectal compliance and therefore poor rectal function, with poor quality of life due to socially debilitating symptoms such as faecal leakage and incontinence.11 Patients who have had an APR will have a permanent colostomy, a life changing consequence of the surgery.

In addition, surgery is not without risk of mortality, with large national audits reporting a potential 30-day mortality rate of 6%.12 Indeed, in our study the mortality rate was 5%. Patients who have a T1 tumour originating in the rectum may be able to avoid the need for major surgery and its associated risks by having an endoscopic or transanal local ‘adequate’ excision. It is possible that many patients in this study may have benefitted from such an approach. Further randomised trial evidence is keenly awaited.13

The 2011 NICE guidelines on the management of early CRC (ie stage I, which includes T1 and T2 disease) recommend that patients who have had locally/endoscopically excised polyps should be offered ‘further treatment’ if there are involved resection margins (<1mm) and one should consider ‘further treatment’ in those with certain pathological characteristics (lymphovascular invasion, poor differentiation).14 The finding that 9% of the patients treated by major surgical resection in this study had positive nodal metastases is in keeping with the literature, which quotes this to be between 6.3% and 17%.15 However, there are particular factors that increase the risk of lymph node involvement such as the depth of the tumour, its architectural differentiation and the presence of lymphovascular invasion.2 In addition, we know that increasing Haggitt and Kikuchi levels are accurate predictors of increased frequency of positive nodal metastases and negative predictive outcome.3

Several studies have supported the safety of local excision. Favoured outcomes have been shown with endoscopic polypectomy and, more recently, with the advances and sophistication of endoscopic techniques, TART and TEMS procedures. In our study, only 15% of patients underwent local excision, highlighting the hesitancy of surgeons to potentially compromise oncological outcomes. Nevertheless, with the lymph node positivity being only 9%, a significant number of patients can be said to have been overtreated with some life changing consequences (eg stoma).15 If such complications can be avoided and an adequate resection that does not compromise oncological outcomes (and hence determines good prognosis for T1 tumours) can be achieved by local excision, then there are clear implications for change in practice.

It is a concern that nearly 70% of these patients had a lymph node yield below that recommended by NICE for an adequate oncological resection. Clearly, the reason for a colorectal surgeon choosing to perform a major surgical resection in a patient with a T1 CRC despite a completely excised T1 polyp is in order to stage and potentially treat the nodal basin. The fact that the majority of patients did not have an adequate lymph node yield as defined by NICE may be because early CRCs tend to have low lymph node yields.16 Despite this, there are concerns about the accuracy of staging in patients with low yields.

In this study, approximately half of all patients who had major surgical resections underwent laparoscopic procedures. Given the NICE guidance recommending the uptake of laparoscopic colorectal surgery in 2006,17 one would have thought that most T1 lesions would be amenable to laparoscopic surgery. As such, our data suggest that there is room for improvement in this area. If surgeons wish to continue to perform major surgical resection for T1 lesions, then they must at least offer laparoscopic surgery to as many patients as possible so that the patients can benefit from its advantages.

The aim of the NHS bowel cancer screening programme is to identify tumours at an early stage. With such varied approaches to management, one cannot be sure of guaranteeing the same prognostic outcomes for each T1 tumour. In this study, 50% of the T1 CRCs were screen detected. As the
national screening programme in Wales matures, it is hoped that a higher proportion of the patients diagnosed with CRC will be screened at an early stage. This further highlights the importance of optimising the care we offer these patients.

There are some limitations in this study that need to be explored. There is lack of detailed pathological data on T1 cancers including the Kikuchi or Haggitt levels, architectural differentiation of the tumour or lymphovascular permeation. Such data would have been useful to identify those patients at increased risk of lymph node metastasis. It is perceived that pathology reporting for T1 cancers is also quite variable and it may therefore be worthwhile to centralise pathology for the reporting of T1 lesions.

A further limitation of our data is that complication rates such as those for anastomotic leakage are not reported. These data would be useful to compare the risks of major surgical resection and local excision. Looking to the future, the CaNISC database has been revised to include more fields such as details on pathology and complications. Indeed, in this study, we excluded 47 patients who were staged as Dukes’ A CRCs as there was no recording of the T stage. No doubt some of these patients may well have had T1 cancers.

Conclusions

The lack of consensus in Wales on the management of T1 CRC has demonstrated the need to clarify guidelines. The decision of how to treat T1 CRC is likely to become a more regular challenge as the screening programme evolves and the CaNISC database has been revised to include more fields such as details on pathology and complications. Indeed, in this study, we excluded 47 patients who were staged as Dukes’ A CRCs as there was no recording of the T stage. No doubt some of these patients may well have had T1 cancers.

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