Management of lateral pelvic lymph nodes by Australasian colorectal surgeons – an insight from the west.

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Abstract

Purpose

Lateral pelvic lymph node dissection (LPLND) for locally advanced low rectal cancer is common practise in Japan. However, it is not widely performed in Western countries. The aim of this survey study is to assess the current practise and management of lateral pelvic lymph nodes by colorectal surgeons in Australasia.

Methods

The authors developed a survey to assess surgeons’ assessment and management of lateral pelvic lymph nodes in patients with rectal cancer. The survey was run through the online RedCap® platform in 2019. An electronic link and request to complete the survey was sent to specialist surgeons of the Colorectal Surgical Society of Australia and New Zealand (CSSANZ).

Results

Ninety-two colorectal surgeons completed the online survey (32% response rate). Eighty percent of participants consider malignant lateral pelvic lymph nodes to represent locoregional, resectable disease. In patients with clinically malignant lateral pelvic lymph nodes on preoperative imaging the majority of respondents (92%) recommend neoadjuvant chemoradiotherapy and eighty six percent would also recommend LPLND. Over half of the surgeons (57%) had no exposure to LPLND during fellowship training and approximately two thirds (62%) do not perform LPLND in their current practise.

Conclusion

This study highlights the challenges in the management of the lateral pelvic lymph nodes in a western context. The majority of the participating Australasian colorectal surgeons consider malignant lateral pelvic lymph nodes to represent locoregional and resectable disease. The majority also recommend LPLND for clinically malignant lateral pelvic nodes. However, adequate training and experience with LPLND is limited.
Colorectal surgeons from Australasia completed an online survey on the management of lateral pelvic lymph nodes in rectal cancer. Though the majority of surgeons consider malignant lateral pelvic lymph nodes to represent locoregional disease and would recommend lateral pelvic lymph node dissection, few have adequate experience or training.

Keywords:
Rectal Cancer, Lateral pelvic lymph node dissection.

Introduction
Lateral pelvic lymph node dissection (LPLND) is the standard of care in Japan for rectal cancers located distal to the peritoneal reflection and with invasion beyond the muscularis propria[1]. In the west where judicious use of neoadjuvant therapy is the standard of care for locally advanced rectal cancer, LPLND is not commonly performed[2]. These differences in practise may in part be a result of different philosophies to management. However, there has been increasing interest in LPLND in the west of late. This is likely a result of recent studies.
that have suggested western management provides inadequate treatment of the lateral pelvic lymph nodes and adversely impacts rates of cancer recurrence and survival.

Significant challenges exist in Australasia with regards to implementing LPLND into current surgical practise. Firstly, there remains a degree of uncertainty with regards to which subset of patients would yield an oncological benefit from LPLND, particularly in the context of neoadjuvant therapy. A further compounding factor in the west is the lack of adequate training and expertise with LPLND. A survey was developed with the aim of gauging the views and current management of lateral pelvic lymph nodes in rectal cancer patients by colorectal specialist surgeons in Australasia that are members of the ‘Colorectal Surgical Society of Australia and New Zealand’ (CSSANZ). There are currently 300 colorectal specialist surgeons in the society for which the overwhelming majority of rectal cancers between the two countries is managed by. CSSANZ also administers the ‘Australia and New Zealand training board of colon and rectal surgery’ (ANZTBCRS) fellowship training program.

Methods

Following a literature review, the authors constructed a survey to assess respondents’ opinions and current management of lateral pelvic lymph nodes for rectal cancer (see Appendix 1). The survey was reviewed and approved by both our local institutional ethics board and the CSSANZ research committee. The survey was run through the online REDCap® program and an electronic link to the survey was sent to all CSSANZ full and provisional members (predominantly ANZTBCRS fellows) with a covering email stating a brief summary of the purpose and aims of the survey. Participation of the survey was anonymous though the participants confirmed their eligibility by entering their CSSANZ code prior to completing the survey.

The survey was sent out in June 2019 with a reminder email sent to non-responders 2-3 weeks later and the survey was available to be completed for a period of 3 months.

The survey consisted of 20 categorical questions where respondents selected one or more options, including if appropriate an “other” response with a free text option. Surgeon demographics were evaluated including; number of years of consultant practise, number of rectal cancer patients managed per year, type of hospital where patients were managed, country of practice, country of colorectal fellowship training, experience with
LPLND during fellowship training, and current experience with LPLND. The survey also sought participants' opinions and philosophy regarding the investigation and management of lateral pelvic lymph nodes.

The survey responses were analysed by calculating the number and percentages of respondents who indicated a particular option.

**Results**

A link to the electronic survey was sent via email to 292 colorectal surgeons; consisting of 232 CSSANZ members and 60 provisional members (including ANZTBCRS fellows). Ninety-two respondents completed the survey which consisted of eighty-six consultant surgeons and six colorectal fellows on the ANZTBCRS fellowship training program. This equated to a response rate of 37% of full CSSANZ members and an overall response rate of 32%.

**Demographics**

The majority of respondents (87%) treated most of their rectal cancer cases in a tertiary hospital and 81% did so in a public hospital. Approximately two thirds of respondents were practising in Australia and one third from New Zealand. Respondents were asked the number of rectal cancer patients they manage per year. The median response was between 11 and 20 cases per year, with 34% of respondents treating greater than 20 rectal cancer patients per year and 22% of respondents treating 10 or less rectal cancer patients per year. In regards to consultant experience 40% of respondents had greater than 15 years of consultant experience, 44% had 10 years or less of consultant experience and 16% had between 11 and 15 years of consultant experience.

**Experience with lateral pelvic lymph node dissection**

Over half of the participants (57%) had no exposure to LPLND during their colorectal fellowship training and nearly two thirds (62%) of the participants do not perform LPLNDs as part of their current practise. Regarding those surgeons who do perform LPLND, twenty one percent reported a case load of one to two per year, seventeen percent reported a case load of a least three per year and of these only four participants (4%) reported more than ten LPLNDs per year (see figure 1). In the cohort of surgeons performing at least three LPLNDs per...
year, half underwent fellowship training in either the United Kingdom or North America. Seventy five percent of these surgeons had exposure to LPLND during fellowship training.

**Philosophy**

Eighty percent of the participants consider metastatic lateral pelvic lymph nodes to represent a loco-regional resectable disease, with the other 20% considering these malignant lateral nodes to represent systemic disease.

**Assessment of Lateral pelvic lymph nodes.**

All participants reported using magnetic resonance imaging (MRI) for the imaging assessment of lateral pelvic lymph nodes. Sixty-six participants (72%) reported also using computed tomography positron emission tomography (CT PET) for the assessment of potentially malignant lateral pelvic lymph nodes.

Participants were asked which imaging features they considered important for the assessment of lateral pelvic lymph nodes (see figure 2). Ninety percent consider lymph node size to be an important feature, and eighty eight percent of participants consider PET positivity to be an important feature on imaging.

Respondents considered a range of lymph node short axis diameters to be suspicious for metastatic disease on pre-operative imaging (see figure 3).

Most respondents (93%) perform restaging imaging after neoadjuvant therapy if there is suspected lateral pelvic lymph node involvement. Ninety one percent of the participants that perform restaging imaging do this with MRI and 48% perform CT PET. Forty three percent restage with both MRI and CT PET.

Over half of the surgeons (59%) that restage patients with suspected malignant lateral pelvic lymph nodes undertake restaging imaging between six to eight weeks after completion of chemoradiotherapy. Only six percent restage longer than 8 weeks after completion of chemoradiotherapy.

**Management of malignant lateral pelvic lymph nodes.**
The majority of respondents (92%) recommended neoadjuvant chemoradiotherapy for patients with clinically malignant lateral pelvic lymph nodes on preoperative imaging. Eight percent of participants (7/92) recommend total neoadjuvant chemotherapy in addition to chemoradiotherapy prior to surgery. No participants recommended a direct to surgery approach for these patients.

Participants were asked in which clinical situation they would recommend a LPLND and eleven percent (10/92) reported that they would not recommend a LPLND for any of their rectal cancer patients. Eighty six percent (79/92) recommend LPLND for patients with clinically malignant lateral pelvic lymph nodes on preoperative imaging.

For patients that require LPLND; 26% (24/92) of participants said they would perform the operation, 36% (33/92) stated that they would request another colleague surgeon to either perform or assist with the operation, and 27% (25/92) would refer the patient to another centre.

The survey included two management questions based on a clinical scenario (as shown in Appendix 1). For the first question participants were asked their preferred operative intervention if restaging imaging showed persistent clinically malignant lateral pelvic lymph nodes. Seventy percent said they would recommend a low anterior resection with total mesorectal excision and LPLND and 21% recommend cherry picking clinically suspicious lateral nodes at the time of surgery (see figure 4).

As for the second question participants were asked their preferred operative intervention if restaging imaging showed resolution of malignant lateral pelvic lymph nodes? The majority of participants (43%) recommended a low anterior resection with TME only (and no surgery to the lateral pelvic lymph nodes) and 20% would still recommend a LPLND (see figure 5).

Discussion.

This study provides an insight on the current management of lateral pelvic lymph nodes for rectal cancer by Australasian colorectal surgeons. This study has shown that the majority of participating colorectal surgeons in Australasia agree with the eastern philosophy that malignant lateral pelvic sidewall nodes represent locoregional, resectable disease. Therefore, it is unlikely that differing philosophy explains the differences in
practise with regards to the lateral pelvic lymph nodes. However, despite this philosophical agreement there remain clear barriers to the implementation of LPLND in Australasia. This study suggests that few colorectal surgeons in Australasia would be considered to have adequate training and experience with this operation. Approximately half the participating colorectal surgeons report no experience with LPLND during their fellowship training and only one third currently performing LPLND in their practise. Also, twenty one percent of participating surgeons only perform between one to two LPLNDs per year. The issue of limited training and expertise with LPLND is a common dilemma in many western countries.

This study also highlights the variations in practice between surgeons with regards to the assessment and management of lateral pelvic lymph nodes. Magnetic resonance imaging is a standard staging investigation for rectal cancer patients in Australasia and all participants report utilisation of this modality to assess the lateral pelvic nodes. However, of interest 72% of responding surgeons report the use of computed tomography positron emission tomography (CT PET) to assess potentially malignant lateral pelvic lymph nodes and for restaging, only forty eight percent of surgeons restage with CT PET. This variation in practise may be a result of the relative paucity of data in the literature on the utility of CT PET for the assessment of lateral pelvic lymph nodes[6]. Most surgeons (90%) considered lymph node size to be an important imaging feature for the assessment of malignant lateral pelvic lymph nodes. Interestingly, a variety of short axis diameters were considered suspicious for malignant disease by respondents (as per figure 3). This may be a reflection of marked variation in the literature with regards to the size criteria consistent with malignancy. In the JCOG2012 randomized controlled trial by S Fujita et al. a lateral lymph node short axis (SA) size of <10mm on CT was considered not enlarged[7]. Other studies have demonstrated that a SA size on MRI before chemoradiotherapy of >7mm or >8mm is associated with lateral pelvic lymph node metastasis[3,8]. Other studies have reported that lateral pelvic lymph node SA diameter >5mm on MRI after chemoradiotherapy are high risk for metastasis[9–11].

There was a lack of consensus on the management of clinically malignant lateral pelvic lymph nodes on initial imaging, with a subsequent benign appearance on restaging imaging. Approximately half the surgeons recommended no surgery on the lateral pelvic lymph nodes and the other half recommended either LPLND or cherry picking clinically suspicious nodes (see figure 5). With regards to cherry picking clinically suspicious lateral pelvic nodes at the time of surgery, 21% of surgeons advocated for this if the nodes had a persistent
malignant appearance on restaging and 35% of surgeons recommended this practise if these nodes had a benign appearance on restaging. It is the author’s opinion that there is no role for cherry picking of abnormal lateral pelvic lymph nodes and that formal LPLND is required when electing to manage lateral sidewall nodes operatively. It must be acknowledged that there is a paucity of data in the literature to support this opinion. However, the practise of cherry picking potentially malignant nodes is not based on sound oncological principles and is synonymous with cherry picking abnormal lymph nodes along the inferior mesenteric artery (IMA) rather than a formal oncological resection (in the form of a high tie on the IMA).

LPLND is a technically challenging procedure, particularly when implementing minimally invasive techniques (such as robotic surgery) and autonomic nerve preservation. In Australasia (and other western countries), attaining adequate training and experience with LPLND is a significant ongoing issue. This dilemma is common to many other novel and innovative surgical procedures in colorectal surgery such as transanal total mesorectal excision (TaTME), transanal minimally invasive surgery (TAMIS) and robotic surgery. Though introduction of these operations has provided a template for training and inclusion of surgical innovations into practise. With accurate patient selection the total number of patients with an indication for LPLND is likely to remain relatively low and this raises the question whether all colorectal surgeons should train in LPLND or whether only limited surgeons at exenterative centres should perform LPLND in order to attain adequate experience and expertise with this operation. Furthermore, development of a validated assessment of surgical quality for LPLND is important to ensure high quality LPLND is being achieved. This may involve lymph node count, surgical photography, and adequate rates of nerve preservation with acceptable sexual, urinary and defecatory function.

The survey response rate of approximately one third of CSSANZ colorectal surgeons who were invited to participate suggests that this study provides a reasonably representative view of Australasian colorectal surgeons on this topical subject. However, potential bias is present in that the surgeons who participated in this study may be more likely to have an interest in the management of lateral pelvic lymph nodes and therefore the level of training and experience may be more inflated than the true figures. Although responders may be more likely to be early adopters of LPLND in the west, it may be argued that these surgeons may be drive change in practise. It
must also be acknowledged that there are inherent weaknesses with survey studies and that the responses may not necessarily reflect the surgeons practise.

This survey study provides an interesting snapshot of opinions and practise on the management of lateral pelvic lymph nodes by colorectal surgeons in Australasia. It also highlights the challenges of lateral pelvic lymph node management in a western context. Before LPLND is adopted into common practise in the west further studies are required to identify which patient, imaging and disease characteristics are associated with an oncological benefit of LPLND. Also, an international consensus guideline on the management of lateral pelvic lymph nodes in rectal cancer patients is needed.

Conflict of Interest: None

References:


Figure 1. Quantity of LPLNDs performed per year by participant surgeons

- 62% performed >10 LPLNDs per year
- 21% performed 6-10 LPLNDs per year
- 5% performed 3-5 LPLNDs per year
- 8% performed 1-2 LPLNDs per year
- 4% performed 0 LPLNDs per year
Figure 2. Imaging features considered important by surgeons for the assessment of malignant lateral pelvic lymph nodes.

- PET positivity: 88%
- Node characteristics (eg. signal intensity, enhancement, density, calcification etc): 88%
- Number of abnormal nodes: 18%
- Irregular Contour: 83%
- Lymph node size: 90%

Figure 3. Lateral pelvic lymph node short axis diameter considered suspicious for metastatic disease by surgeons.

- >5mm: 25%
- >7mm: 44%
- >10mm: 31%
Figure 4. Surgeons’ recommended management of lateral pelvic lymph nodes with persistent suspicious appearance on restaging (based on clinical scenario).

Figure 5. Surgeons’ recommended management of lateral pelvic lymph nodes that initially appeared malignant with subsequent benign appearance on restaging (based on clinical scenario).
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