



Review

Management of para-aortic lymph node metastasis in colorectal patients: A systemic review



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ABSTRACT

Introduction: Para-aortic lymph node (PALN) involvement occurs in up to 2% of colorectal cancer (CRC) patients. While resection for isolated hepatic and pulmonary metastases in colorectal cancer is standard practice, the role of PALN dissection (PALND) in CRC has not been established and remains a controversy. We aim to perform a systematic review of the literature to determine if extensive lymphadenectomy improves survival, and is an acceptable strategy for PALN metastasis (PALNM).

Materials and methods: A systematic search of PubMed and Embase databases for studies reporting on patients with isolated PALNM in CRC was performed. Studies including patients with synchronous and metachronous PALN were included, and studies including patients with other metastases were excluded.

Results: Eighteen retrospective, single-centre studies were included in the final analysis. The reported incidence of isolated PALNM ranged from 1.3 to 1.7%. A total of 370 patients with PALNM were evaluated, of which 145 had synchronous, and 225 had metachronous PALNM. For synchronous PALNM, the 5-year overall survival (OS) after metastatectomy, ranged from 22.7% to 33.9%. For metachronous PALNM, the 5-year OS ranged from 15 to 60%; median OS was 34–40 months in the PALND versus 3–14 months for patients who did not undergo PALND. There were no reported surgery related mortalities, and overall surgical morbidity was 7.8–33%.

Conclusion: PALND for isolated PALNM from colorectal cancer can be performed with minimal morbidity and confers a survival advantage, in comparison with conventional palliative chemotherapy or chemoradiation therapy.

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1. Introduction

Para-aortic lymph node (PALN) involvement in colorectal cancer (CRC) is uncommon, with a reported incidence of less than 2% [1,2]. According to the American Joint Committee on Cancer (AJCC) [3], they represent disseminated, stage IV disease. The Japanese Society for Cancer of the Colon and Rectum (JSCCR), however, consider para-aortic lymph node metastasis (PALNM) regional, stage III disease [4,5]. With such differing views on the significance of PALNM, it is hardly surprising that management strategies have been divided [6,7].

While an aggressive surgical approach is advocated for selected patients with resectable hepatic and/or pulmonary metastasis, with reported 5-year survival rates approaching 50–70% [8–10], the optimal management for PALNM is not clearly defined. To date, several case series have reported favourable outcomes in patients who undergo PALN dissection (PALND) [1,2,11,12], however evidence is limited, and most studies are small and retrospective in nature. Furthermore, no direct comparison has been made between PALND and modern curative chemo-radiotherapy regimes.

It has been proposed that synchronous and metachronous colorectal cancer metastases have distinct tumor biologies [13]. Synchronous metastases have been associated with a more aggressive clinical picture, with patients experiencing poorer survival outcomes when compared with metachronous patients [14,15]. Most reports on PALNM however, do not differentiate between the two [1,11]. We believe that discussing their outcomes independently may shed light on their possibly distinct biologies and is crucial in the oncological management.

Given the lack of randomised trials and high quality evidence, we aim to perform a systemic review of the current literature to evaluate evidence for or against surgery in the management of PALNM in CRC. We also hope to define a management strategy for both synchronous and metachronous PALNM (s- and m-PALNM) based on the reported survival and morbidity outcomes.

2. Materials and methods

A literature search of PubMed, Ovid MEDLINE, and EMBASE databases was conducted for studies reporting on the management of PALNM in colorectal cancer, published in English from January 1958 to March 2016 (PALND for colorectal cancer was first described and published by Deddish and Stearns in 1958 [16]). The medical search headings (MeSH), ‘colorectal cancer’, ‘para-aortic lymph nodes’, ‘para-aortic lymph node dissection’, ‘retroperitoneal lymph nodes’, ‘recurrence’, ‘synchronous’ and ‘metachronous metastasis’ were used. Additional relevant studies were identified from the references cited in the articles identified by the database searches. This study was conducted in accordance to the PRISMA guidelines [17] (Fig. 1).

2.1. Criteria for inclusion of study

The authors identified and screened the search results for potentially eligible studies. Articles were included if they were: (1) Original articles published in English in peer-reviewed journals, (2)

included CRC patients with s-PALNM identified by imaging modalities, such as computed topography (CT) or positron emission tomography (PET) scans, (3) included CRC patients with m-PALNM following primary curative surgery, and had (4) Clear documentation of patient survival and morbidity outcomes.

Articles were excluded if they: (1) were abstracts, letters, editorials, and expert opinions, (2) included CRC patients with concurrent hepatic, pulmonary, or other systemic metastasis, (3) included patients where PALND was performed prophylactically i.e. without intra-operatively detected or radiologically suspicious lymph nodes.

Studies that presented data on other distant sites of colorectal metastasis were included only if data of patients with PALNM could be isolated from other patient subgroups.

2.2. Data extraction and analysis

Data was extracted using standardised forms, which recorded patient and study characteristics, survival outcomes, post-operative morbidity and mortality when PALND was performed, and the use of neo-adjuvant and/or adjuvant chemotherapy or chemo-radiotherapy. Two distinct patient populations were identified: (1) Patients with synchronous s-PALNM) and (2) Patients with m-PALNM. Given their inherent differences, the 2 groups were analysed and outcomes determined independently.

In both ‘synchronous’ and ‘metachronous’ groups, comparison was made between patients who received curative surgery versus no surgery. In the non-surgical group, patients may have received either chemotherapy, chemo-radiotherapy or were managed conservatively. Survival and morbidity outcomes were analysed.

All studies were assessed for their level of evidence using the Oxford Centre for Evidence-Based Medicine Levels of Evidence table [18]. The authors elected to perform a descriptive review of the

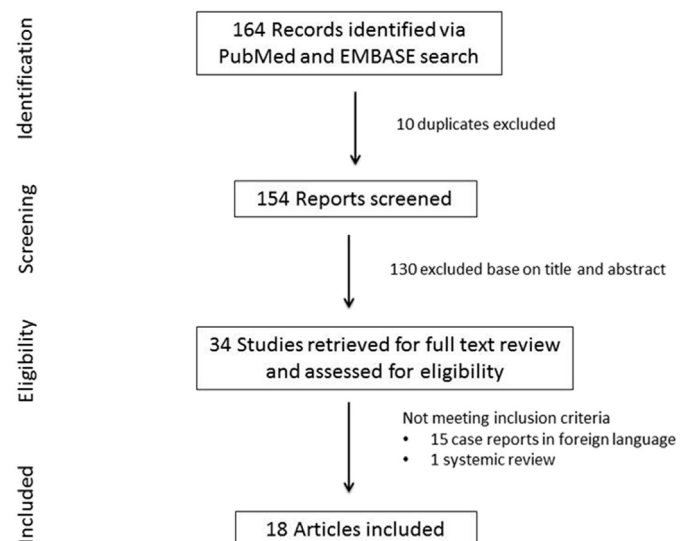


Fig. 1. Flow diagram of selection of eligible studies.

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