# Practice patterns of Canadian urologists in the management of stage I testicular seminoma

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BAGNELL S, CHOO R, KLOTZ LH, CHATERJEE S. Practice patterns of Canadian urologists in the management of stage I testicular seminoma. The Canadian Journal of Urology. 2004;11(2):2194-2199.

**Objective:** To evaluate the practice patterns of Canadian urologists in the management of stage I testicular seminoma.

Methods: A survey was conducted with a three-page questionnaire among Canadian urologists between July and November 2002.

**Results:** The overall response rate was 48%. The total number of completed and partially completed questionnaires was 198 and 212, respectively. Ninetyfour responders described their practice as universityaffiliated teaching centre, while 118 reported communitybased or private practice. All ordered CT abdomen/pelvis with either chest x-ray or CT scan of chest for staging investigation. Only 1% would order a lymphangiogram. About one third would not offer surveillance as a management option for stage I testicular seminoma. When asked to rank, in order of preference, three

Accepted for publication November 2003

Presented as a poster at the 58<sup>th</sup> Annual Meeting of the Canadian Urological Association, Montreal, June 2003.

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The Canadian Journal of Urology; 11(2); April 2004

management options (surveillance, adjuvant radiotherapy, and adjuvant chemotherapy) under four different clinical scenarios varying in perceived relapse risk and the presence/absence of fertility preservation concern, the majority selected adjuvant radiotherapy as the treatment of choice for a patient with high relapse risk or no fertility concern. When a patient had desire to preserve fertility as well as low relapse risk, surveillance was chosen as the preferred management strategy. There was no significant response difference between academic and community urologists.

**Conclusion:** There was some variation among Canadian urologists in the management of stage I testicular seminoma. The issue of fertility preservation and perceived relapse risk were important factors influencing management decisions. There was no significant difference between academic and community-based urologists with respect to patient volume and management approaches.

**Key Words:** survey, practice pattern, urologists, testicular seminoma

### Introduction

Testicular cancer affects approximately four to six men per 100 000 per year.<sup>1,2</sup> The majority are of germ cell origin, 40% to 60% of them being seminoma. Approximately two-thirds of testicular seminomas present as clinical stage I.<sup>3,4</sup> Management options Practice patterns of Canadian urologists in the management of stage I testicular seminoma

following radical inguinal orchiectomy for stage I seminoma are diverse and range from up-front adjuvant radiotherapy or chemotherapy to surveillance alone with reservation of radiotherapy or chemotherapy for salvage of relapse. Factors influencing management decision are the estimated risk of relapse based on pathological features of the malignancy, potential treatment morbidity, and a patient's specific social, emotional, and economic circumstances.<sup>5</sup>

The majority of testicular seminoma patients are 20-40 years old. Therefore the potential morbidity of treatment such as impaired fertility and a second, treatment-induced, latent malignancy is a major issue that impacts on the management decision. The concern of fertility preservation is further compounded by the fact that a significant proportion of these patients have pre-existing low fertility rates.<sup>6</sup> Radiotherapy and chemotherapy can impair spermatogenesis and induce a second, latent malignancy.<sup>7,8</sup> This concern of treatment-related morbidity, together with the availability of improved imaging techniques for early detection of relapse and more effective salvage treatment for relapse, has led to increasing interest in a conservative approach of surveillance in recent years.9-11

As more management options are available, there has been growing diversity in the management of stage I seminoma of testis. While some urologists offer surveillance as one of the management options, others routinely recommend adjuvant radiotherapy or chemotherapy. The objective of this paper is to examine the practice patterns of the management of stage I seminoma of testis among Canadian urologists, as gathered by survey.

### Materials and methods

A survey was conducted between July and November 2002. The three-page questionnaire used for the survey is shown in Table 1. It was mailed to the members of the Canadian Urological Association residing in Canada. Respondents were asked to return the survey in a postage-paid envelope provided or to fax their response.

The questionnaire consisted of two sections: 1) Physician's practice profile, 2) Management approaches for stage I seminoma of testis which included the extent of radiological investigation, the prevalence of using surveillance strategy, and a ranking of management options for a patient with 'high' or 'low' risk of relapse in the presence or absence of concern for preserving fertility.

The collected data were systematically recorded and tabulated on an Excel spreadsheet. Analyses were done with SAS Version 8 (SAS Institute Inc).

#### Results

#### Response rate and practice profile

The number of questionnaires returned was 237 (out of 498 sent) with a response rate of 48%. Twenty-five responses were excluded from analysis, as they were from non-practicing urologists. Of the remaining 212 respondents, 2 completed only the 'practice profile' part of the questionnaire. These 2 responses were included for the analysis of practice profile. Additional 12 responders did not complete all the practice management questions in the second part of the questionnaire and were not included for the analysis of this part of questionnaire. Thus, the total number of respondents completing the entire survey was 198.

Ninety-four responders described their practice as university-affiliated teaching centre, and the remaining 118 reported community-based or private practice. When asked about the number of new testicular seminoma cases seen per year, the majority (186/212, 88%) stated that they would see 1-5 new cases per year. Only 11 and 3 urologists would treat 6-10 and  $\geq$  11 new cases per year, respectively. The 3 urologists managing more than 10 new cases per year were in academic centers. Twelve urologists felt they would see less than one new case per year.

## Radiological investigations following radical inguinal orchiectomy

Radiologic work-up was relatively consistent among urologists. All ordered a CT abdomen/pelvis with either chest x-ray or CT scan of chest. Eighty-two percent and 53% would order, as a part of staging investigation, chest x-ray and CT scan of chest, respectively. All but two would not order a lymphangiogram.

### Management approaches

Two thirds of the urologists (139/212) offered surveillance as an option to their patients Table 2. Among the urologists offering the option of surveillance, the mean estimated proportion of patients opting for surveillance was 42%.

Urologists were asked to rank, in the order of preference, three management options under four different clinical scenarios varying in perceived relapse risk and the presence/absence of fertility preservation concern. Table 3 summaries the results.

TA	BLE 1. Survey: Stage I pure seminoma of testes				
I	Your Practice Profile				
1. a) b)	How would you describe your clinical practice? (please check appropriate box) Community/ Private Practice University affiliated teaching centre				
2.	Do you work in a comprehensive multidisciplinary cancer centre? Yes 🔲 No 🔲				
3. a)	How many new cases of seminoma (of any stage) do you see per year? (please check appropriate box).0 $\bigcirc$ b)1-5 $\bigcirc$ c)6-10 $\bigcirc$ d)> 11 $\bigcirc$				
II	Management of Stage I Pure Seminoma of Testes				
A	Radiological investigations         What radiological investigations to you perform as staging work-up for patients who underwent inguinal orchiectomy?         Lymphangiogram       Yes       No				
В	Management: Stage I pure seminoma of teste				
1.	In your practice, do you offer the patient the option of surveillance, with salvage radiotherapy or chemotherapy reserved for relapse? Yes No IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				
2.	For clinical stage I seminoma of testis with low risk of relapse (i.e. the size of primary testicular tumor < 4 cm, no lymphatic or vascular space invasion, and no tumor invasion into the rete testis): Under this circumstance,				
2.1. a) b) c)	If a patient wishes to preserve fertility, how would you manage this low risk Stage I Seminoma of Testes?       (Rank 1 to 3, with 1 being "Most Preferable")       Rank         Surveillance with reservation of radiotherapy or chemotherapy for relapse       □         Post-operative adjuvant radiotherapy to para-aortic +/- ipsilateral pelvic region       □         Post-operative adjuvant single-agent chemotherapy (e.g. one or two cycles of carboplatin)       □				
2.2. a) b) c)	If a patient does not have concern about fertility preservation (as he completed family planning), how would you manage this low risk Stage I Seminoma of Testes? (Rank 1 to 3, with 1 being "Most Preferable")       Rank         Surveillance with reservation of radiotherapy or chemotherapy for relapse       Image: Image				
3.	For clinical stage I seminoma of testis with high risk of relapse (i.e. the size of primary testicular tumor > 4 cm, lymphatic or vascular space invasion, and/or tumor invasion into the rete testis): Under this circumstance,				
3.1. a) b) c)	If a patient wishes to preserve fertility, how would you manage this high risk Stage I Seminoma of Testes?       Rank         (Rank 1 to 3, with 1 being "Most Preferable")       Rank         Surveillance with reservation of radiotherapy or chemotherapy for relapse       Image: Comparison of the co				
3.2. a) b) c)	If a patient does not have concern about fertility preservation (as he completed family planning), how would you manage this high risk Stage I Seminoma of Testes? (Rank 1 to 3, with 1 being "Most Preferable") Rank Surveillance with reservation of radiotherapy or chemotherapy for relapse Post-operative adjuvant radiotherapy to para-aortic +/- ipsilateral pelvic region Post-operative adjuvant single-agent chemotherapy (e.g. one or two cycles of carboplatin)				
4. a) b) c)	In your practice, to which medical speciality do you refer a patient with clinical stage I seminoma of testis? (choose one) Never to refer to other speciality Radiation oncology Medical oncology				

Practice profile	Number of urologists offering surveillance (%)	Number of Urologists not offering surveillance (%)	Total
Community	78 (66%)	40 (34%)	118
University/ Academic	61 (65%)	33 (35%)	94
Total	139 (66%)	73 (34%)	212

TABLE 2.	Surveillance as a management option
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For a 'low risk' patient with fertility concern, the majority chose surveillance (78%) as the preferred management strategy. Only 21% and 1% selected adjuvant radiotherapy and adjuvant chemotherapy, respectively, as the first line of management. In contrast, for a 'high risk' patient with fertility concern, 70% chose adjuvant radiotherapy as the treatment of choice, while only 15% would offer surveillance as the first choice. When fertility was not of concern to a patient, 58% and 78% selected adjuvant radiotherapy as the first choice for a 'low risk' and 'high risk' patient, respectively. In the absence of fertility concern, 41% and 5% chose surveillance as the treatment of choice for a 'low risk' and 'high risk' patient, respectively. Adjuvant chemotherapy was the least frequent first choice for all 4 case scenarios except for a 'high risk' patient without fertility concern.

There was no significant difference between academic and community urologists with respect to the number of new cases seen per year, the extent of radiological work-up, and the proportion of responders offering surveillance as a management option. Furthermore, when the management options selected by academic urologists were compared with those by community urologists, there was little difference in all the clinical scenarios. Practice profile (community versus academic) did not affect rankings in any of the clinical scenarios. Also surveillance was no more likely to be offered in the academic versus community practices, in any of the clinical situations.

#### Discussion

#### Overview

The diversity of management of stage I testicular seminoma stems, to a large extent, from a shift of focus from the usual goal of improving cure to an attempt to minimize the morbidity of treatment. The efficacy of post-operative adjuvant radiotherapy has been well supported in the literature with long-term survival of greater than 95%. However there has been increasing concern with regards to potential long-term radiation-induced morbidity, which includes impaired spermatogenesis, chronic gastrointestinal complication and second malignancy.<sup>8,13-17</sup> Furthermore, a blank policy of adjuvant radiotherapy for all patients has led to concern of over-treatment, since only 15%-20% of clinical stage I testicular

	Surveillance as 1st choice (%)	Radiotherapy as 1st choice (%)	Chemotherapy as 1st choice (%)	Totals
Low relapse risk and	155	41	2	198
presence of fertility concern	(78%)	(21%)	(1%)	
Low relapse risk and	82	114	2	198
absence of fertility concern	(41%)	(58%)	(1%)	
High relapse risk and	30	139	29	198
presence of fertility concern	(15%)	(70%)	(15%)	
High relapse risk and	10	154	34	198
absence of fertility concern	(5%)	(78%)	(17%)	

TABLE 3	Management	nroforoncos	in the four	r difforant	clinical	sconarios
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seminoma develops relapse.<sup>5</sup> These concerns as well as the ability to detect recurrence early by more effective imaging tools and the availability of effective salvage treatment for relapse have led to increasing consideration of a conservative approach of surveillance with reservation of radiotherapy or chemotherapy for relapse. Surveillance requires, however, a commitment by both patient and physician to long-term intensive monitoring with regular radiological tests. Also economic and psychological costs associated with surveillance may be as great as those of upfront adjuvant treatment.

This survey is by no means comprehensive. The overall response rate of the survey, 48%, was suboptimal. It could have been improved with a second mail-out or telephone follow-up. Also, except for perceived risk of relapse based on pathological features and fertility concern, no other potential factors that may influence the management decision were incorporated in the survey. Such factors include a patient's socioeconomic situation, ability to comply with a strict surveillance follow-up protocol, and relative ease or difficulty accessing radiotherapy or chemotherapy in the community. Due to these limitations, the observed findings of this survey may not be generalizable to the broad urological community.

As reflected in the survey outcome, there is clearly some variation among Canadian urologists in the management of stage I seminoma. The two recent surveys conducted among radiation oncologists in Canada, the United States, Australia, and New Zealand also reported similar variation in the management of stage I seminoma of testis.<sup>18,19</sup> In the radiation oncology community, Canadian radiation oncologists appeared to be offering surveillance more readily to patients than their counterparts in the other countries. The Australia/New Zealand survey reported that only 54% of their radiation oncologists even discussed an option of surveillance, and estimated that only 5% or fewer of their patients would choose it.

#### Radiological investigations as staging work-up

Almost unanimous agreement was reached among urologists with regard to the inclusion of CT scan of abdomen and pelvis with either chest X-ray or CT scan of chest as staging work-up. However, there was significant variation in the utilization of CT scan of chest. Fifty-three percent included CT scan of chest as a part of routine staging investigations while 47% did not. There has been, up to now, no study to evaluate the incidence of positive findings in CT scan of chest for patients with normal chest x-ray. However, the benefit of performing CT scan of chest in the presence of normal chest x-ray appears very marginal, given the fact that the proportion of patients on surveillance who developed subsequent pulmonary or mediastinal nodal metastasis was very low (<1%) in the three large surveillance studies.<sup>5, 20,</sup> <sup>21</sup> Only 1% of the responders would routinely order lymphangiogram. This likely reflects the trend that it has been gradually replaced by high quality CT scan of the abdomen and pelvis and no longer offered in many hospitals.

#### Management options

It is of interest to note that one third of respondents would not offer the option of surveillance, although there has been increasing evidence that surveillance with reservation of radiotherapy or chemotherapy for salvage of relapse does not compromise cure. The survey did not explore the reasons for not offering surveillance. Potential issues related to surveillance such as patient compliance, the necessity of long term follow-up, and psychological and economic burden of surveillance itself may play a role.

Our survey confirmed that perceived risk of relapse and the issue of fertility preservation would clearly influence the management decision. When there was no fertility preservation concern, the majority recommended adjuvant radiotherapy regardless whether a patient had 'low' or 'high' relapse risk. In the presence of fertility concern, management was further influenced by perceived risk of relapse. In this clinical context, surveillance was the most popular choice for a 'low risk' patient, while adjuvant radiotherapy remained the treatment of choice for 'high risk'. Interestingly, when a patient had a high risk of relapse as well as fertility concern, perceived relapse risk appeared the over-riding factor, as the majority recommended adjuvant radiotherapy. In our survey, 17% would offer adjuvant chemotherapy as the first line of treatment for a patient with a 'high risk' of relapse, but without fertility concern. Although there has been some recent data supporting the use of adjuvant chemotherapy in Stage 1 seminoma,<sup>12</sup> its routine use has not been clearly established yet, as it requires more clinical data and longer follow-up.

#### Conclusions

There is some variation among Canadian urologists in the management of stage I testicular seminoma. The issue of fertility preservation and perceived relapse Practice patterns of Canadian urologists in the management of stage I testicular seminoma

risk appeared important factors influencing management decisions. There was no significant difference between academic and community-based urologists with respect to patient volume and management approaches including the prevalence of using a surveillance strategy.  $\hfill \Box$ 

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