



# Redefining surveillance strategies: innovations in testicular cancer care

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Testicular cancer is a relatively rare but highly treatable malignancy that primarily affects young men. The American Cancer Society estimates 9,190 new cases of testicular cancer will be diagnosed in the United States in 2023 (1), and approximately 70% will have tumours localized to the testicle [clinical stage (CS) I] (2). The risk of relapse in patients with localized disease managed with active surveillance (AS) is approximately 30% (3,4). Traditional surveillance strategies have come under scrutiny, prompting the need for a comprehensive redesign. In this editorial, we review the article published by Matulewicz *et al.* (5), focused on re-evaluating and optimizing post-orchietomy surveillance.

Matulewicz *et al.* (5) presented a compelling narrative review exploring novel surveillance strategies for patients with CS I testicular cancer. They highlight three fields with the most innovation: (I) telehealth, (II) novel imaging techniques and (III) miRNAs. For each field, the potential impact on health care delivery, detection of relapses, and risk of overtreatment is reviewed.

Testicular cancer surveillance faces significant challenges due to the overwhelming number of patients requiring long-term follow-up. The combination of an aging population, rising cancer incidence rates, and improved treatment outcomes leading to increased survivorship has burdened healthcare systems' ability to adequate care

for survivors. Unfortunately, these situations often result in patients being lost to follow-up, delayed detection of cancer recurrence, or neglect of other critical aspects of survivorship care. Telehealth is one way to address the growing demands of survivorship care, allowing clinics to physically accommodate new and more patients, without affecting the quality of care for patients on AS.

Matulewicz *et al.* (5) discussed the Web-based virtuAl Testicular CANcer (WATChmAN) randomized controlled trial comparing in-person care to virtual care. Preliminary results from 144 participants demonstrated several noteworthy findings. Firstly, participants receiving virtual care displayed higher engagement levels, as evidenced by a survey response rate of 100% compared to only 44% for the in-person group. Moreover, virtual care was associated with increased patient satisfaction and a heightened sense of trust, with 92% of virtual patients expressing confidence that the WATChmAN program can provide the same level of excellence of care as in-person appointments (6). Furthermore, virtual care increased compliance with AS schedules (89% *vs.* 73%), Notably, 62% of virtual care patients expressed a preference for receiving bad news virtually rather than in-person. The results of this trial are in the process of publication. In this young patient population that heavily relies on the use of novel technology, incorporating technological innovations that

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offer convenience, time-efficiency, and improved access and engagement to healthcare is crucial.

Two recent studies assessed the role of minimizing the intensity of follow up during AS for CS I testicular cancer (7,8). The first was our experience at The Princess Margaret Cancer Centre, where we were able to achieve considerable reductions in surveillance intensity without observing an increase in disease extent, treatment burden, or cancer-specific mortality upon relapse. For seminoma, chest X-rays were reduced from 13 to 1 and computed tomography (CT) scans were reduced from 20 to 10. Conversely for non-seminomatous germ cell tumors (NSGCTs), chest X-rays were reduced from 27 to 0 and CT scans were reduced from 11 to 5 (7). The second was the Trial of Imaging and Surveillance in Seminoma Testis (TRISST) study, which showed no significant difference in survival outcomes after reducing the intensity of follow-up to a three-scan schedule versus the conventional seven-scan [CT/magnetic resonance imaging (MRI)] schedules (8). Additionally, MRI was non-inferior to CT as a follow-up imaging modality for CS I seminoma on AS. These findings emphasize the potential for optimizing surveillance strategies, minimizing healthcare resource utilization, and improving patient experience in the management of early-stage testicular cancer.

Lastly, Matulewicz *et al.* (5) delve into the role of miRNA, particularly miR-371a-3p, in the context of CS I testicular cancer. The consistent and reliable ability of miR-371a-3p to detect relapses in patients undergoing surveillance for CS I disease has been well-documented in previous studies (9-11). However, the potential of this biomarker to predict occult metastatic disease remains controversial. Lobo *et al.* found no significant association between post-orchietomy miR-371a-3p levels or percentage of decline, and the risk of relapse (10). Conversely, a recent study presented by Nappi *et al.* at American Society of Clinical Oncology (ASCO) 2023 using miR-371a-3p in CS I patients on surveillance, reported that miR-371a-3p was positive in 63% of the patients with relapses, preceded clinical evident disease by a median of 3 months compared with cross-sectional imaging, and predicted recurrence after orchietomy (12). It becomes increasingly evident that miR-371a-3p holds promise as a tool for improving the management and outcomes of CS I testicular cancer patients. Following the necessary approvals and establishment of a validated pipeline, miR-371A-3P could become a routine marker in the follow-up of CS I patients undergoing surveillance.

To conclude, this paper presents a timely and insightful

exploration of the innovations of surveillance strategies for CS I testicular cancer. By integrating virtual care, novel biomarkers, and reducing the intensity of imaging follow-up while incorporating novel imaging techniques, we could offer our patients a more personalized and effective approach to surveillance. As the field of oncology progresses, it is imperative that we adapt our practices to optimize patient outcomes. The findings and recommendations put forth by Matulewicz *et al.* (5) should serve as a catalyst for further research and collaboration, ultimately leading to the implementation of further innovations that address the limitations of traditional care.

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