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**Case Report: Ovarian Schistosomiasis in a Regional Australian Healthcare Setting**

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**Abstract**

Schistosomiasis is a water-borne parasitic disease affecting millions worldwide, particularly in Africa and tropical regions of South America and Asia. We present an unusual Schistosomiasis in the ovaries of a postmenopausal woman undergoing bilateral salpingo-oophorectomy for chronic severe pain associated with chronic endometriosis. The woman had initially emigrated from the Philippines and lived in regional Australia. The case highlights the peculiarities of health care in migrant Australians, often encumbered by the difficulties of living in remote and regional settings. This case demonstrates the importance of comprehensive history-taking and multidisciplinary collaboration to effectively manage complex medical cases, where the past may be equally significant as the current presenting complaint.

**Introduction**

Schistosomiasis, colloquially known as bilharzia or snail fever, is a water-borne parasitic disease caused by parasitic trematode worms belonging to the genus *Schistosoma* (1,2). It is a disease of global impact, affecting nearly 240 million individuals worldwide, predominantly in impoverished rural and peri-urban areas of Sub-Saharan Africa, South America and Asia (3). It is the second most common infection after malaria (4). Schistosomes have a complex life cycle involving specific freshwater snail species as intermediate hosts and humans as the definitive hosts. Human infection typically occurs during routine agricultural, domestic, and recreational activities that expose individuals to infested water contaminated with the free-swimming larval form, cercariae (5). Once in the human body, the larvae transform into adult worms, mainly in the mesenteric or perivesical veins, initiating a cascade of inflammatory and immunologic responses. The pathological changes in tissues infested by Schistosomiasis are caused by a progressive inflammatory reaction to the parasite, leading to granulomas, fibrosis, and eventual organ dysfunction, such as hepatomegaly, splenomegaly and genito-urinary disorders (6). In severe cases, the complications may be life-threatening. (7). Understanding this disease's life cycle, transmission, and pathogenesis is fundamental for effective diagnosis, treatment, and control. In much of the world, however, effective strategies are encumbered by ever-pressing factors such as poverty, lack of access to clean water, and insufficient health education (8). This case presentation demonstrates that Schistosomiasis may also be seen in Australian health services, particularly in regional and remote centres where migrant Australians tend to settle. It highlights the importance of developing a thorough understanding of history and endemic risk and acknowledges the unique and contemporary challenge of providing safe, effective health care to all Australians.

**Case Presentation**

We present the case of a 53-year-old postmenopausal migrant woman who presented in late 2022 with severe, chronic pelvic pain and dyspareunia. The pain was long-standing. At the time of presentation, she was noted to

have had a cholecystectomy one year earlier for gall stones demonstrated on abdominal ultrasound in the setting of persistent epigastric pain. The scan had also shown small, bilateral ovarian cysts thought to be consistent with chronic endometriomas. In 2017, she had had laparoscopic cystectomy confirming the diagnosis. Interestingly, the histology of adjacent stromal tissue identified calcified ova with giant cell infiltration likely to be reminiscent of non-active Schistosomiasis. It was noted that the patient had grown up on farmlands in the Philippines which were subject to flooding, before emigrating to Australia in 2009. Both she and other family members had been treated with Praziquantel for Schistosomiasis. She was now living in rural Victoria, working as a seasonal labourer.

On current examination, liver function tests showed mildly elevated ALP and GGT. Ultrasound of the right upper quadrant demonstrated heterogeneous changes within the liver consistent with chronic infection or inflammation. Liver function and inflammatory markers were otherwise normal and non-specific. Pelvic imaging showed the persistence of the ovarian cysts noted the previous year. There was no significant change in size, with the largest still measuring less than 25x 21 x 17mm. Serum tumour markers were normal - CEA 3.3 CA 125: 14 CA19-9: <2 AFP 2.8. She was diagnosed with persistent, chronic endometriosis associated with ovarian cyst formation. She was offered the option of either conservative surveillance or surgical management. She requested the latter and was booked for bilateral oophorectomy with salpingectomy and total hysterectomy. The procedure was commenced laparoscopically but was converted to an open procedure following the discovery of dense intra-peritoneal adhesions between the posterior uterus and the small bowel. The procedure continued uneventfully, and she made a complete recovery and was discharged on day four following surgery for outpatient review.

The uterus, endometrium and cervix showed histological changes consistent with age and parity. The right ovary measured 30 x 22 x 20mm and was almost entirely comprised of a blood-filled endometrioma. The left ovary was smaller and contained another haemorrhagic cyst. There was no evidence of atypia, hyperplasia or malignancy in the samples. There were, however, multiple small, calcified oval-shaped bodies with distinct capsules scattered through the parenchyma of both ovaries. These were also found in the walls of the fallopian tubes. Occasional foreign body giant cells were also present. The findings were highly suggestive of quiescent Schistosomiasis. The patient was referred for review by the Infectious diseases team. She was seen approximately one month later and arrived in good health. She had recovered fully from surgery and reported significant improvement in her symptoms of

abdominal pain and coital discomfort. Urine and faecal samples showed no trace of ova or parasites. Her blood, including CRP and inflammatory markers, were normal though her liver function tests continued to demonstrate some mild elevation, though not to be significant. No further treatment for Schistosomiasis was required.

## Discussion

Genital Schistosomiasis was first described by Summers in 1906. The infection primarily affects the cervix but can also involve the ovaries, fallopian tubes, vagina, and vulva, causing genitourinary symptoms, including bleeding disorders, ulcers, tumours, lower abdominal pain and infertility (9).

The case highlights the significance of parasitic diseases such as Schistosomiasis in migrant Australians. At best, it illustrates that evidence of infection may persist long after a clinical cure. At worst, the disease may continue unabated in patients not fortunate to have received appropriate treatment and in whom symptoms of the disease may remain unsuspected and undiagnosed. The possibility becomes tenable in such a setting as ours, in rural or remote Australia. Many of our population have emigrated from countries where the parasitic disease is endemic. Routine diagnosis may be difficult without clinical suspicion, with studies suggesting that more than half of affected patients will have no schistosome ova detected in either urine or stool (10-12). Similarly, the sensitivity for diagnosing genital Schistosomiasis using a conventional pap smear or polymerase chain reaction of vaginal fluid may only be positive in two-thirds of cases (13,14). Serology does not differentiate active from inactive infection and may be falsely negative in the acute phase of infection (15).

In this case report, the diagnosis was based on incidental histological findings at the time of the first ovarian cystectomy for endometriosis in 2017. The suspicion was substantiated by comprehensive history taking, which suggested prior exposure to Schistosomiasis during the patient's childhood abroad. However, these historical points are sometimes rarely sought or acknowledged during the passage of routine care in an Australian health care system. The association of Schistosomiasis and endometriosis is unknown. It is likely to be coincidental, but the possibility of synergistic disease and, thus, opportunistic exacerbation cannot be excluded. The possibility asserts that effective management requires the treatment of both, as each may perpetuate the other through ongoing inflammation and fibrosis.

## Conclusion

The clinical diagnosis of Schistosomiasis may be difficult. Symptoms are often non-specific. It may present with abdominal pain or signs of hepatic dysfunction but

may also fulminate pelvic inflammatory disease and early pregnancy loss. This case demonstrates such complexities. It highlights the challenge of providing safe and effective healthcare in regional Australia, where diagnoses such as this may be part of daily life for a population where diverse history, often with complex endemic risk is confounded by language and education barriers, socio-economic inequality and cultural apprehension. The report champions the vital importance of comprehensive history-taking and collaborative communication between multidisciplinary teams to ensure effective coordinated care for all patients.

## References

1. Occurrence of digenean parasites in freshwater snails in the Murrumbidgee catchment area, Australia S Shamsi, A Banfield, N Francis, DP Barton, M McLellan *Food and Waterborne Parasitology*, Volume 32, September 2023, - Elsevier <https://doi.org/10.1016/j.fawpar.2023.e00202>
2. A systematic review of frequency and geographic distribution of water-borne parasites in the Middle East and North Africa S Abuseir - *Eastern Mediterranean Health Journal*, 29 (2):151-161, 2023 - [apps.who.int 1020-3397-2023-2902-151-161-eng.pdf](https://apps.who.int/1020-3397-2023-2902-151-161-eng.pdf)
3. The abundance and morphology of human large intestinal goblet and tuft cells during chronic schistosomiasis MB Gologorsky, CM Mechler, E Forgó G W Charville, M R Howitt... - *Parasite Immunology*, Volume 45, issue 6, June 2023, e12981 - Wiley Online Library <https://doi.org/10.1111/pim.12981>
4. A critical review on human malaria and schistosomiasis vaccines: current state, recent advancements, and developments AJ Siddiqui, J Bhardwaj, J Saxena, S Jahan, M Snoussi, F Bardakci, R Badraoui and M Adnan *Vaccines* 2023, 11(4), 792; <https://doi.org/10.3390/vaccines11040792>...
5. Effects of water pollution on human health and disease heterogeneity: a review L Lin, H Yang, X Xu - *Frontiers in environmental science*, 2022 - [frontiersin.org](https://frontiersin.org)
6. Blood flukes and arterial damage: a review of aneurysm cases in patients with schistosomiasis V Silvestri, V Mushi, MI Mshana, W M Bonaventura, N C Justine, D Sabas and B Ngasala *Journal of Infectious Diseases and Medical Microbiology* Volume 2022 | Article ID 6483819 | <https://doi.org/10.1155/2022/6483819>
7. Infections and Cardiovascular Disease: JACC Focus Seminar 1/4 JM Farina, K Liblik, P Iomini, A F M Arboleda, C Saldarriaga, I Mendoza, E J Zaidel, J M R Campal, A S Liprandi and A Baranchuk ... - *Journal of the American College of Cardiology* ..., 2023 - [jacc.org J Am Coll Cardiol. 2023 Jan, 81 \(1\) 71–80](https://doi.org/10.1016/j.jacc.2023.01.011)
8. Sustainable wastewater management: An imperative for urban development in Lagos, Nigeria M Seedat-Khan, VI Oguniola, RO Okocha, AV Owoyomi, AR Mansingh- *Sustainable Development...*, 2023 - Wiley Online Library <https://doi.org/10.1002/sd.2585>
9. prevalence of Female Genital Schistosomiasis and comparing the acceptability and performance of health worker-collected and self-collected cervical-vaginal Swabs Using PCR testing among women in North-Western, Tanzania: The ShWAB study T Ursini, S Scarso, S Mugassa, JB Othman, AJ yussuph, E Ndaboine, G Mbwani, C Mazzi, M Leonardi, M Prato, E Pomari, HD Mazigo... - *PLOS Neglected ...*, 2023 - [journals.plos.org https://doi.org/10.1371/journal.pntd.0011465](https://doi.org/10.1371/journal.pntd.0011465)
10. Schistosomiasis in non-endemic areas: Italian consensus recommendations for screening, diagnosis and management by the Italian Society of Tropical ... A Comelli, C Genovese, F Gobbi, G Brindicci, et al... - *Infection*, 2023 – Springer [Infection https://doi.org/10.1007/s15010-023-02050-7](https://doi.org/10.1007/s15010-023-02050-7)
11. Neglected Tropical Diseases and migrants: a global health challenge amid access barriers and lack of gold standard diagnostics R Marrone - 2023 - [iris.univr.it](https://iris.univr.it)
12. Schistosomiasis at the crossroad to elimination: Review of eclipsed research with emphasis on the post-transmission agenda M Giboda, R Bergquist, J Utzinger - *Tropical Medicine and Infectious ...*, 2022 - [mdpi.com Trop. Med. Infect. Dis. 2022, 7\(4\), 55; https://doi.org/10.3390/tropicalmed7040055](https://doi.org/10.3390/tropicalmed7040055)
13. Genital Schistosomiasis and comparing the acceptability and performance of health worker-collected and self-collected cervical-vaginal swabs using PCR ... T Ursini, S Scarso, S Mugassa, JB Othman... - *PLOS Neglected ...*, 2023 - [journals.plos.org https://doi.org/10.1371/journal.pntd.0011465](https://doi.org/10.1371/journal.pntd.0011465)
14. Schistosoma PCR among high school girls in South Africa as a complimentary diagnostic tool for Female Genital Schistosomiasis (FGS) P Pillay, M Taylor, S Zulu, SG Gundersen... - *International Journal of Infectious Diseases*, Volume 21,
15. Diagnosis of echinococcosis by detecting circulating cell-free DNA and miRNA M Hadipour, M Fasihi Harandi, H Mirhendi, & HY Darani... - *Expert Review of Molecular Diagnosis*, Volume 23, 2023-issue 2, Taylor & Francis <https://doi.org/10.1080/14737159.2023.2178903>