A RETROSPECTIVE REVIEW OF NEGLECTED TROPICAL DISEASES DIAGNOSED ON HISTOPATHOLOGICAL SPECIMENS IN THE FREE STATE PROVINCE OVER A SIX-YEAR PERIOD (2015 – 2020)

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INTRODUCTION

Neglected tropical diseases (NTDs) are a heterogeneous group of medical afflictions, that commonly occur in impoverished populations. NTDs are primarily diagnosed in tropical areas between the Tropic of Cancer and the Tropic of Capricorn. South Africa is not situated in this region where tropical diseases often occur. The high poverty rate in South Africa, however, makes the country susceptible to NTDs. The Department of Health of South Africa currently regards four principal NTDs of significance in South Africa: soil-transmitted helminths, schistosomiasis, leprosy, and rabies.[1] There is no current data available on the burden of NTDs diagnosed on histopathological specimens in the Free State province of South Africa. This study aimed to determine the number of NTDs diagnosed on histopathological specimens in the state sector of the Free State province over a six-year period and to evaluate the patient demographics.

MATERIALS AND METHODS

A retrospective, descriptive study was conducted. All NTDs diagnosed on histological specimens received by the Department of Anatomical Pathology, University of the Free State (UFS), were included in this study. Specimens submitted between 1 January 2015 to 31 December 2020 were considered in the study. SNOMED word searches were conducted for the 20 official NTDs, as recognised by the WHO.[2]

The data parameters investigated included patients' age, gender, year of diagnosis, biopsy site, indication for biopsy and final NTD diagnosis. The area in which patients reside and the name of the public sector hospital that submitted the sample were also considered. Confidentiality of patients was ensured by assigning a unique number to each case on the data capture sheet.

RESULTS

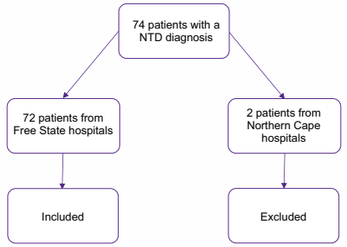


Figure 1: The process of data selection on patients with an NTD diagnosis

The youngest patient with an NTD diagnosis in our patient cohort was 3 years old and the oldest patient was 64 years.

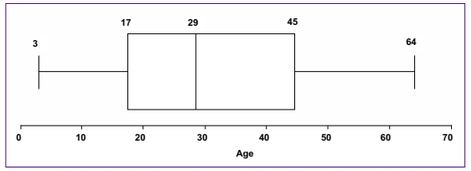


Figure 2: Age distribution of patients diagnosed with a NTD on histopathological specimens

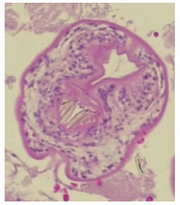
Table 1: Characteristics of patients diagnosed with a NTD

Characteristic	Frequency (n)	Percentage (%)
Demographics		
Male	42	58.33
Female	30	41.67
Total	**72**	**100**
Diagnosis		
Echinococcosis	33	45.83
Bilharzia	13	18.06
Leprosy	9	12.05
Mycetoma	8	11.11
Intestinal worms	5	6.94
Cysticercosis	3	4.17
Scabies	1	1.39
Total	**72**	**100**
Hospital submitting specimen		
Universitas Academic Hospital	52	72.22
Pelonomi Hospital	12	16.67
Dihlabeng Hospital	3	4.17
Bongani Regional Hospital	2	2.78
3 Military Hospital	1	1.39
Boitumelo Hospital	1	1.39
Phekolong Hospital	1	1.39
Total	**72**	**100**

Submitting hospital

Most specimens with a diagnosis of an NTD came from Universitas Academic Hospital (UAH) 72.22% (*n=52*), followed by Pelonomi Tertiary Hospital 16.67% (*n=12*). Other hospitals from which fewer specimens with an NTD were received included Dihlabeng Hospital 4.17% (*n=3*), Bongani Hospital 2.78% (*n=2*), 3 Military Hospital 1.39% (*n=1*), Boitumelo Hospital 1.39% (*n=1*) and Phekolong Hospital 1.39% (*n=1*).

The indications for biopsy varied. Unfortunately, a comprehensive clinical indication and history were often not present on request forms. The most common indication specified on the request forms were mass lesions identified on imaging studies. Macroscopic haematuria and sandy patches on cystoscopy were the most common indication for biopsy for suspected urogenital schistosomiasis. A few NTD diagnoses were incidental after routine specimen submissions, such as specimens received for bilateral tubal ligation, a myomatous uterus, and cystic structures identified in the omentum during caesarean section.



The most common NTD: Echinococcosis

Photo 1: An Echinococcus cyst smiling with its "teeth" (hooklets) for the camera
Photo credit: Dr L Budding, Department of Anatomical Pathology, UFS

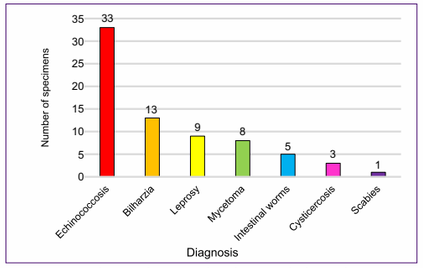


Figure 3: Spectrum of NTDs diagnosed on histopathological specimens in the Free State province over six years (2015 – 2020)

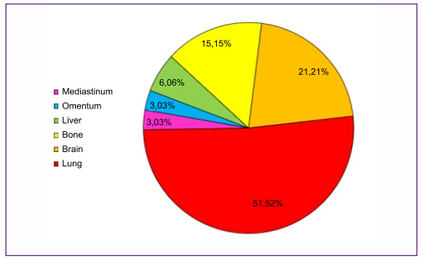


Figure 4: Biopsy site where the diagnosis of echinococcosis was made

Most patients, 30.30% (*n=10*), diagnosed with echinococcosis came from Lesotho, followed by Bloemfontein with 12.12% (*n=4*) and Welkom with 9.09% (*n=3*). The remainder of the cases were identified intermittently throughout the Free State. 9.09% (*n=3*) of patients with echinococcosis resided in the Northern Cape, 3.03% (*n=1*) in the Eastern Cape, and 6,06% (*n=2*) patients with unknown locations were also diagnosed at hospitals in the Free State. (Figure 5)

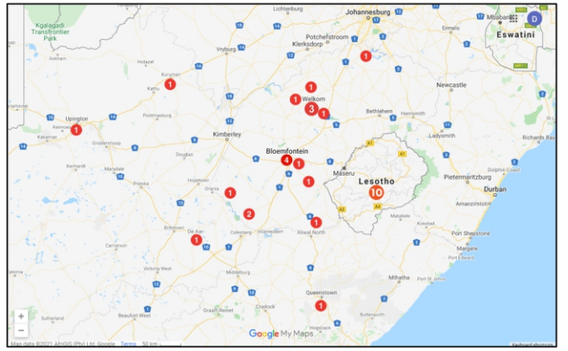


Figure 5: Map showing location of patients diagnosed with Echinococcosis

Other NTDs identified

Urogenital bilharzia constituted 84.61% (*n=11*) of bilharzia cases, with intestinal bilharzia contributing 15.38% (*n=2*). Paucibacillary leprosy contributed the majority of leprosy cases 55.55% (*n=5*). lepromatous leprosy 11.11% (*n=1*), tuberculoid leprosy 11.11% (*n=1*), multibacillary leprosy 11.11% (*n=1*), and indeterminate leprosy 11.11% (*n=1*) all contributed equally to the leprosy caseload.

CONCLUSION

As the famous Afrikaans poet, writer, lawyer and naturalist, Eugene Marais indicates in his poem Skoppensboer regarding death, "when all that remains is dust and ash, the worm will preside." In concordance with this remark, the majority of NTDs in our study were caused by helminths. Collectively, echinococcosis, bilharzia, cysticercosis and intestinal worms contributed 75% (*n=54*) of the NTD cases diagnosed in state sector hospitals in the Free State province. NTDs are indeed neglected, as evidenced by the lack of data from literature available. We could not find any similar studies conducted on NTDs in South Africa. We suspect that NTDs are underreported and underdiagnosed. Considering this lack of epidemiological information on NTDs in South Africa, we identified the need to conduct further studies to update current data on these neglected but important diseases.

REFERENCES

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