

Geographical Distribution Of Carcinoma Penis patients from Nepal: Retrospective analysis from a tertiary care cancer centre.

Umesh Nepal¹, Binod Babu Gharti¹, Bharat Mani Pokharel¹, Greta Pandey², Pradipti Adhikari¹, Nirmal Lamichhane¹

¹: Urology Unit, Department of Surgical Oncology, ²: Department of Pathology, B P Koirala Memorial Cancer Hospital, Bharatpur, Nepal.

Abstract

Introduction: Carcinoma of Penis is not an uncommon disease in Nepal and comprises 1-10% of all the malignancies in males. The objective of this study is to retrospectively analyze the geographical distribution of these patients who visited Urology clinics at B P Koirala Memorial Cancer Hospital(BPKMCH), Bharatpur, Nepal during the specified time period.

Materials and Methods: Altogether 183 patients from January 2012 to December 2016 with penile cancer were included. All others who had incomplete information about their address or those patients from neighboring countries were excluded. Data was collected and analyzed to find out the commonest provinces and districts in the country with the disease.

Results: Madhesh Province also known as province No 2 was found to have the maximum disease burden. Out of the total 183 patients analysed, 87 were from Madhesh Province. The ratio of patients coming from this province was much more as compared to other provinces in the country. All the districts in this province showed a large disease burden with the maximum number of patients coming from Sarahi and Siraha districts. We did not receive any patient from Karnali Province during the specified time Period.

Conclusions: Considering the fact that we are receiving a large number of patients from Madhesh province, we think we have to start educating the public in those districts. Regular early detection health camps to evaluate for any genital symptoms or lesions would have been beneficial. Educating them of hygiene, initiating vaccination programs would benefit. Remoteness of Karnali Province might have caused nil patient visiting for care. It can be proposed that government service and hospital services should reach these places to serve these remote areas.

Key words: *Geographical distribution, cancer penis, treatment, precancerous lesions*

Correspondence: Dr Umesh Nepal, Department Of Urology, B P Koirala memorial cancer Hospital, Bharatpur, Chitwan, Nepal Email: uromesh@gmail.com

Introduction:

Carcinoma of Penis is not an uncommon condition in a developing country like Nepal and comprises 1-10% of all the malignancies in males. However, Penile cancer is now rare condition, accounting for less than 1% of cancers diagnosed in men in the United States. Most of the penile cancer is squamous cell carcinoma. The disease in itself is a challenge to Urologist and Onco-surgeons as it carries significant morbidity and mortality with approximately 50% 5-year cancer-specific survival.¹ With an improvement in the understanding of the natural history of the disease, the cure rate has increased from 50% in 1990 to 80% in recent years.² Lower incidence of the disease makes the valid estimation of prognosis of squamous cell carcinoma of the penis (SCCP) difficult. To address this issue many investigators Kattan et al, Zini et al, and Thuret et al developed various models to predict Cancer-Specific Mortality (CSM) free rates for SCCP.

There are no published data regarding the geographical distribution of such cases from Nepal or the neighboring countries. It is very important for us to know such distributions because of the relatively higher incidence of such cases in our part of the world. Knowing the actual catchment area will enable us to direct our preventive strategies in those areas in order to decrease the disease burden.

Aims and Objectives:

The main aim and objective of this study is to find out the main provinces and districts of the country from where we receive our carcinoma Penis cases. Also, our target is to find out if there

are any regions from where we get no such cases because not getting patients may not always mean that there are no patients there.

Materials and Method:

This is a retrospective study. All the biopsy proven carcinoma penis patients who attended Urology OPD in our center from January 2012 to December 2016 were analyzed. Those who had detailed address and were from within the country were included whereas all those without information regarding address and all those from outside the country were excluded. Total 218 patients had biopsy proven Squamous Cell Carcinoma out of which 35 were excluded and 183 were included in the study.

Results:

Madhesh Province also known as province No 2 was found to have the maximum disease burden. Out of the total 183 patients analysed, 87 were from Madhesh Province. The ratio of patients coming from this province was much more as compared to other provinces in the country. All the districts in this province showed a large disease burden with the maximum number of patients coming from Sarahi and Siraha districts. We did not receive any patient from Karnali Province during the specified time Period.

Fig 1 shows the patient distribution on the map of Nepal. The yellow colored Madhes province shows its various districts and packed patients as shown by purple colored triangles.

We did not receive any patient from the relatively bigger Karnali province, as seen on the figure. This does not mean that the prevalence is nil

there but can be many other reasons which we will discuss in the discussion part.

Fig 2 & 3 show patient distribution from all fourteen districts of province No 1. Here maximum number of patients were from Jhapa and Morang districts followed by Sunsari district.

Fig 4 & 5 show patient distribution from all eight districts of Madhes province. This province was formerly known as province no 2. It shows that this province has high number of patients from all districts, major bulk of patients coming from Sarahi and Siraha districts.

Fig 6 & 7 show patient distribution from all 13 districts of Bagmati Province (formerly known as Province no 3). Maximum patients were from Chitawan and Makawanpur districts. However, we did not receive any patient from the capital city Kathmandu during this specified time period.

Fig 8 & 9 show patient distribution from all eleven districts of Gandaki province. Maximum number of patients were from Nawalparasi and Gorkha districts. The country was divided into seventy five districts at the time of study period but we now have seventy seven districts. Nawalparasi now is divided into two different districts in two different provinces. We have kept all patients recorded from Nawalparasi District at that time under the Nawalparasi (Bardaghat Susta purva) in our study.

Fig 10 & 11 show patient distribution from various districts of Lumbini Province. Maximum number of patients were from Rupandehi district followed by equal number of patients from Glumi, Palpa and Kapilvastu districts.

Fig 12 & 13 show no patients coming to our hospital from Karnali Province.

Fig 14 & 15 show patient distribution from various districts of SudurPaschim Province. Maximum number of patients were from Kailali and Kanchanpur districts.

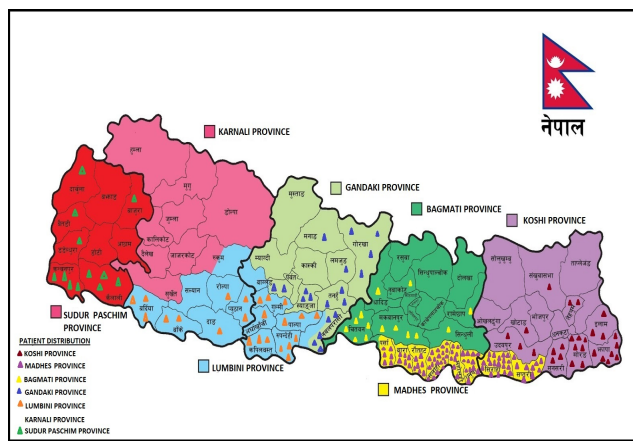


Fig 1: The distribution of Ca Penis patients on the map of Nepal with various district and provincial demarcation.

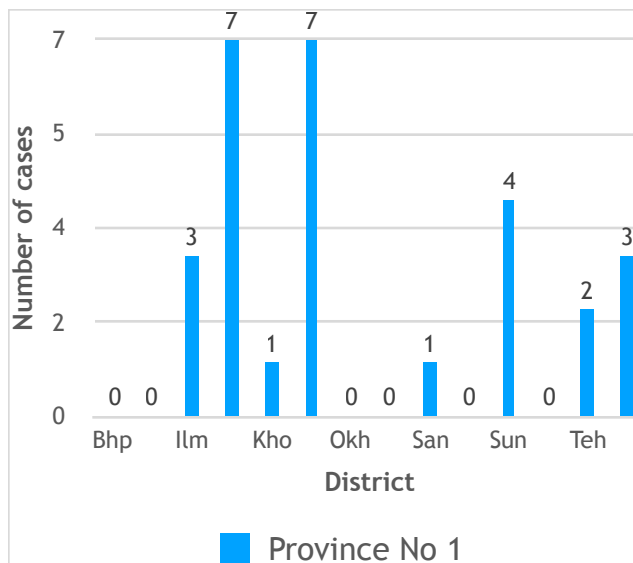


Fig 2: District wise distribution of patients in province no 1. Bhp= Bhojpur, Dhk= Dhankuta, Ilm= ilam, Jhp= Jhapa, Kho= khotang, Mor= Morang, Okh= Okhaldhunga, Pan= Panchthar, San= Sankhuwasabha, Sol= Solukhumbu, Sun= Sunsari, Tap= Taplejung, Teh= Tehrathum, Udy= Udaypur.

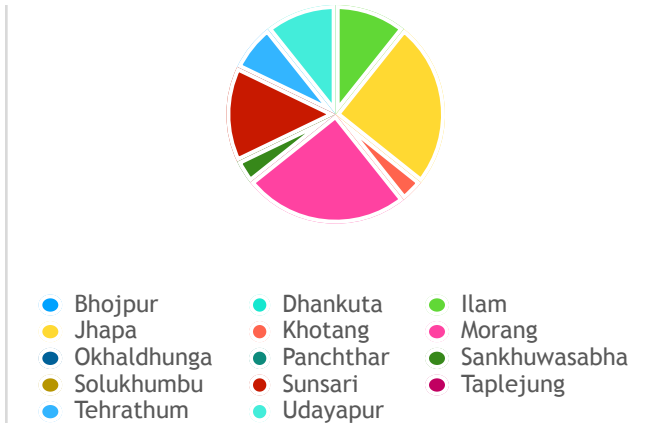


Fig 3: Pie Chart showing patient distribution from Province No 1.

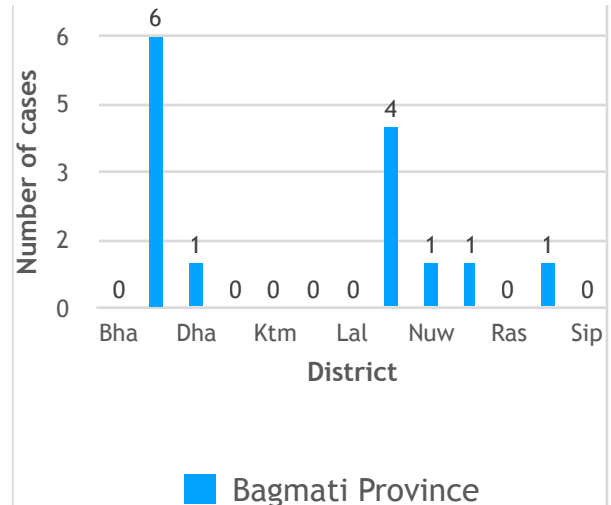


Fig 6: Patient distribution from various districts of Bagmati Province. Bha= Bhaktapur, Chi= Chitawan, Dha= Dhading, Dol= Dolakha, Ktm= kathmandu, Kav= Kavre, Lal= Lalitpur, Mak= Makwanpur, Nuw= Nuwakot, Ram= Ramechhap, Ras= Rasuwa, Sin= Sindhuli, Sip= Sindhupalchok.

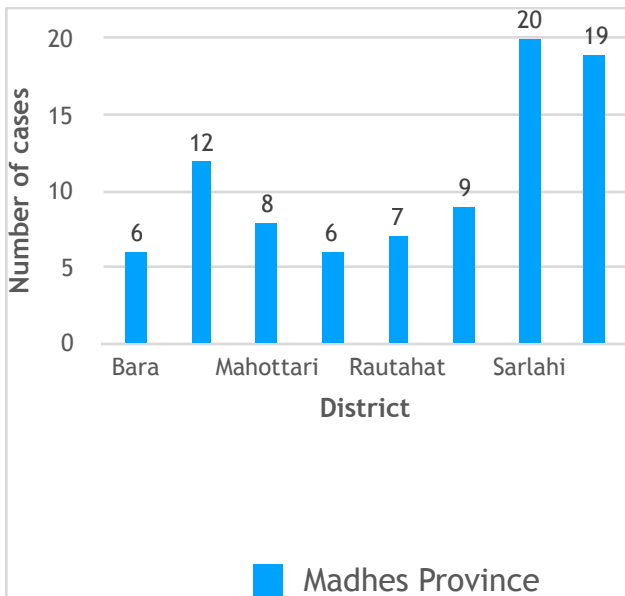


Fig 4: Patient Distribution from various districts of Madhes province (formerly known as province no 2).

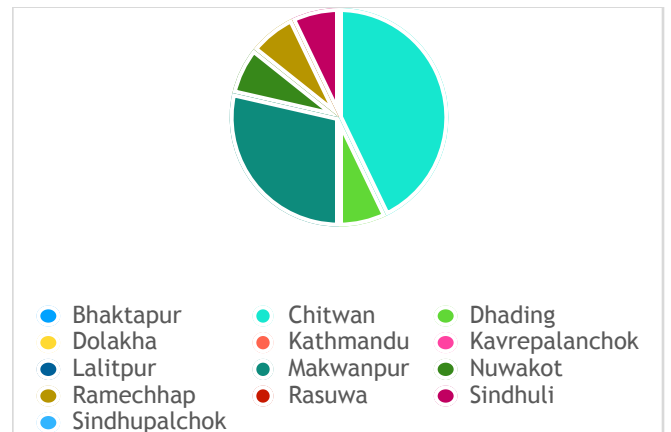


Fig 7: Pie Chart showing patient distribution from various districts of Bagmati Province

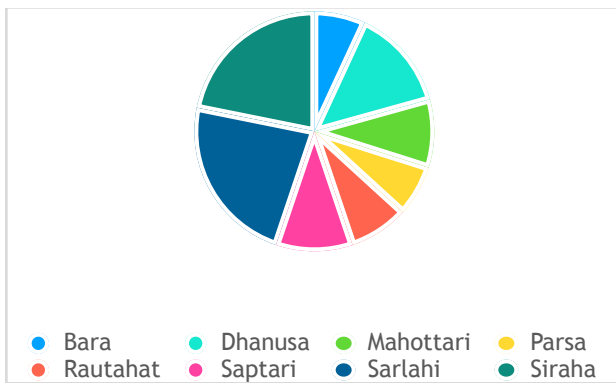


Fig 5: Pie chart showing patient distribution in various districts of Madhes Province

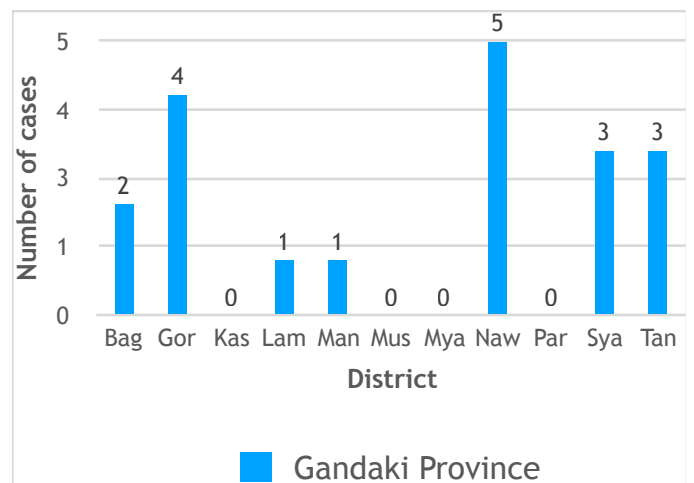


Fig 8: Patient distribution from various districts of Gandaki province. Bag= Bagmati, Gor= Gorkha, Kas= Kaski, Lam= Lamjung, Man = Manang, Mus= Mustang, Mya= Myagdi, Naw= Nawalparasi(Bardaghat Susuta Purva), Par= Parbat, Sya= Nyanja

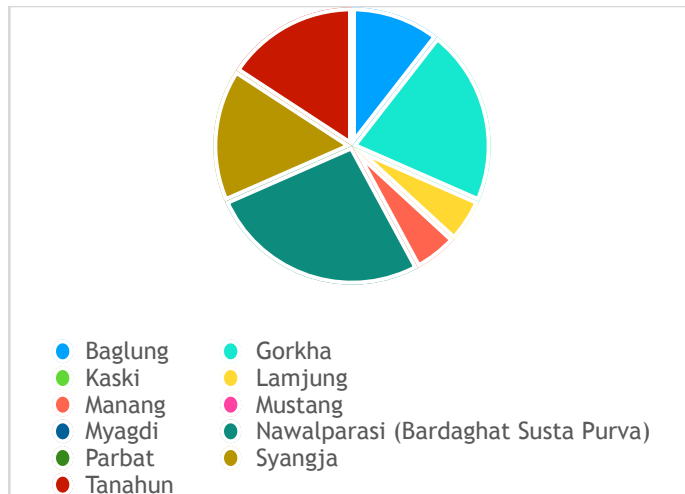


Fig 9: Pie chart showing patient distribution from various districts of Gandaki Province

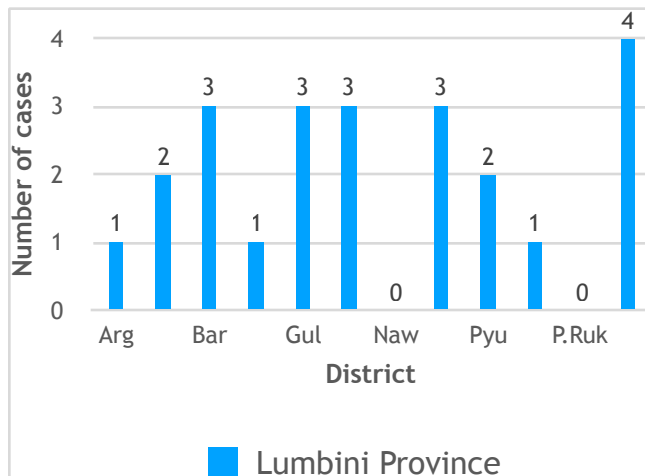


Fig 10: Patient distribution from various districts of Lumbini Province. Arg= Argakhachi, Ban= Bank, Bar= Bardiye, Dan= Dang, Kap= Kapilvastu, Naw= Nawalparasi(Bardaghat susta Pashim), Pal= Palpa, Pyu= Pyuthan, Rol= Rolpa, P. Ruk= Purbi Rukum, Rup= Rupan-dehi

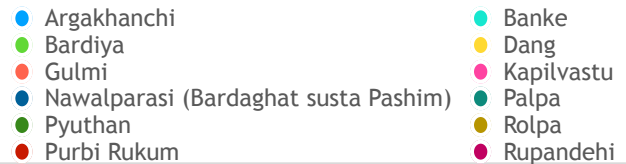
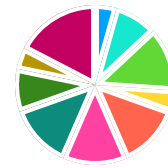


Fig 11: Pie chart showing patient distribution from various districts of Lumbini Province

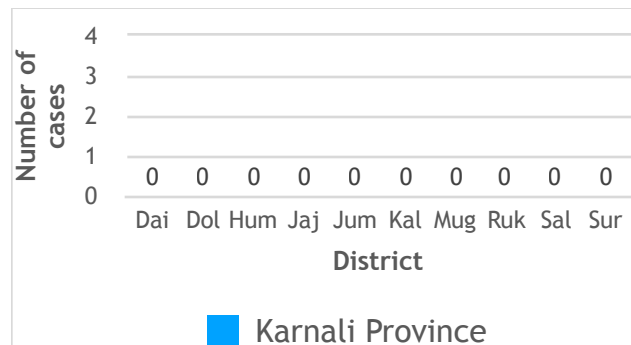


Fig 12: Patient distribution of various districts of Karnali Province. Dai= Dailekh, Dol= Dolpa, Hum= Humla, Jaj= Jajarkot, Jum= Jumla, Kal= Kalikot, Mug= Mugu, Ruk= Rukum Pashim, Sal= Salyan, Sur= Surkhet

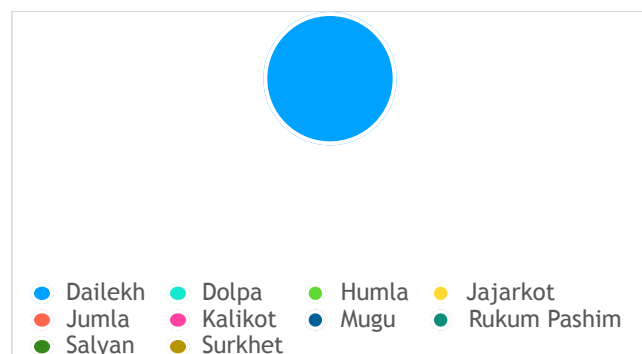


Fig 13: Pie chart showing no patient from various districts of Karnali Province

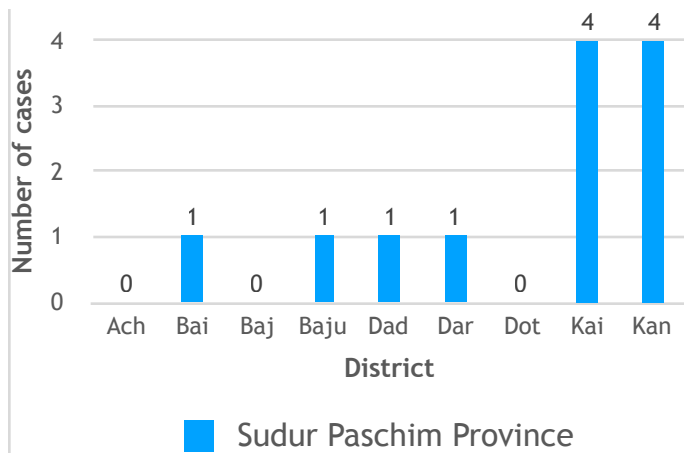


Fig 14: Figure showing patient distribution of Sudur Paschim Province. Ach= Achham, Bai= Baitadi, Baj= Bajhang, Baju= Bajura, Dad= Dadeldhura, Dar= Darchula, Dot= Doti, Kai= Kailali, Kan= Kanchanpur

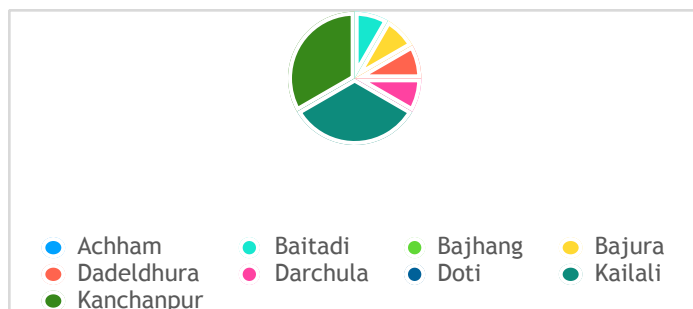


Fig 15: Pie chart showing patient distribution of Sudur Paschim Province.

Discussion:

Penile cancer is a rare neoplasm most common in men aged 50–70 years old.^{1,2} Worldwide, the incidence rate is highest in Brazil, at 2.8–6.8 per 100,000 while Israel has lowest incidence at 0.1 in 100,000.^{1,3-5} The highest documented incidence of malignant neoplasms, with rates as high as 6%, is seen in nations that are economically unequal or have low rates of circumcision, including Brazil, India, and African countries. It is relatively curable, although treatment typically has considerable physical and psychological side

effects. 15–50% of patients delay getting therapy by up to a year due to fear, humiliation, and social stigma.⁶ People who were afflicted were more likely to be Smokers, Uncircumcised, in their Sixties, and have Low Socioeconomic Status.⁷ Phimosis, lack of circumcision, obesity, smoking, UVA phototherapy, socioeconomic status, HPV infection and immune compromised status are possible inciting factors for the development of a penile malignancy.⁸ The highest incidence of Penile Cancer in Terai belt in Nepal probably is due to poor socioeconomic status, lack of hygiene, smoking and HPV infection. This has prompted us to consider HPV screening programs and camps to detect the disease early. The analysis of the geographic distribution of penile cancer is essential for comprehending the disease situation and for developing practical strategies for minimizing the disease burden.

In our study, we received maximum patients from Madhes Province and no patient from karnali province. The high disease burden in all the districts of Madhes Province can be because of the poor personal hygiene, low socioeconomic status, lack of education and awareness regarding cleanliness, religious regions not practicing childhood circumcision and possible high prevalence of Human Papilloma Virus (HPV). Separate studies are required regarding the prevalence of HPV in these areas so that effective vaccination can be started in order to decrease the prevalence of HPV related diseases including Carcinoma Penis. Regular Heath camps and genital lesion screening camps should be started in these areas so that the diseases can be identified in an early stage which will facilitate cure and ultimate survival.

In these areas of high disease prevalence, programs of health education need to be aired by local radio and media houses so that the people become aware of what to do and what not. They should also be made aware of when to visit health care facilities immediately. Regarding the socioeconomic problems, government should try to make cancer treatment affordable to all.

We had no patients from Karnali province in the specified time period. This does not mean that the disease is non prevalent there but it may be because of the remoteness of those districts with poor road or air connection to the cities. These patients may not be coming also because of poor socioeconomic status such that they cannot even afford to travel to a cancer hospital in the City area. Government in collaboration with our cancer center can conduct various screening camps in such remote areas and facilitate their travel and treatment if found.

Conclusions and Recommendations:

Considering the fact that we are receiving a large number of patients from Madhesh province, we think we have to start educating the public in those districts. Health education about personal hygiene and regular free health camps to evaluate for any genital symptoms or lesions are a must. We must also plan to start a vaccination drive in these places to bring down HPV infections. Also, receiving no patients Karnali Province doesn't mean that we have no patients there, but, these patients may not be coming to us or receiving proper medical care due to geographical remoteness or socioeconomic status. Government as well as our Hospital should focus on these re-

mote areas so that the people there do not miss proper medical attention.

References:

1. Pow-Sang MR, Ferreira U, Pow-Sang JM, et al. Epidemiology and natural history of penile cancer. *Urology* 2010;76:S2-6.
2. Mosconi AM, Roila F, Gatta G, et al. Cancer of the penis. *Crit Rev Oncol Hematol* 2005;53:165-77.
3. Shavit O, Roura E, Barchana M, et al. Burden of human papillomavirus infection and related diseases in Israel. *Vaccine* 2013;31 Suppl 8:I32-41.
4. Favorito LA, Nardi AC, Ronalsa M, et al. Epidemiologic study on penile cancer in Brazil. *Int Braz J Urol* 2008;34:587-91; discussion 591-3.
5. Couto TC, Arruda RM, Couto MC, et al. Epidemiological study of penile cancer in Pernambuco: experience of two reference centers. *Int Braz J Urol* 2014;40:738-44
6. Misra S, Chaturvedi A, Misra NC. Penile carcinoma: a challenge for the developing world. *Lancet Oncol* 2004;5:240-7.
7. Koifman L, Vides AJ, Koifman N, et al. Epidemiological aspects of penile cancer in Rio de Janeiro: evaluation of 230 cases. *Int Braz J Urol* 2011;37:231-40; discussion 240-3.
8. Douglawi A, Masterson TA. Updates on the epidemiology and risk factors for penile cancer. *Translational andrology and urology*. 2017 Oct;6(5):785.