Sexual behaviour in male patients with genital ulcers attending dermatology outpatient department and sexually transmitted infections clinic

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Abstract

Objective To analyze the sexual behaviour of male patients with genital ulcer disease (GUD) - both sexually acquired or transmitted (STU) and non-sexually transmitted ulcers (non-STU).

Methods Male patients presenting with genital ulcer(s) to Dermatology out-patient department and sexually transmitted infections (STI) clinic of a tertiary care centre of eastern India were subjected to a pretested open-ended questionnaire. Illiterate patients were interviewed and their response was recorded. The study was conducted over a period of one year and at the end of study period, data was analyzed. A total of 110 patients were included in study for analysis and relative incidence rate of male genital ulcers (MGU) was found to be 4.88 per 1000.

Results A total of 110 patients were included in study for analysis and relative incidence rate of MGU was 4.88 per 1000. Majority of MGU (65.4%) was contributed by non-STU. Positive history of sexual exposure was found in around 53.1%, 97.4% and 22.2% of MGU, STU and non-STU patients, respectively. Mean number of partners was more in cases of STU and majority of the sex partners were commercial sex worker (CSW), (69.5%, 78.9%, and 68.7% in MGU, STU, and non-STU, respectively). Knowledge of condoms and its protective role in STI was found in 68.5%, 56.4%, and 75% in MGU, STU and non-STU patients, respectively. It was significantly higher in non-STU group. Irregular use of condom was found in a large number of patients (25.23%, 48.72%, and 12.5% in MGU, STU, and non-STU, respectively). Of note, irregular use of condom was found in a significant higher number of STU patients.

Conclusion Non-STU was responsible for majority of GUD in our study. History of sexual exposure and sex with high risk group (CSW) was noted in both STU as well as non-STU. Hence, high risk sexual behaviour alone should not bias us towards the diagnosis of STU. Awareness of protective benefits of condoms against STI/ HIV is high, but it does not necessarily lead to consistent use of condoms.

Key words
Genital ulcer disease, sexually transmitted ulcers, HIV, AIDS, sexual behaviour, commercial sex worker, condoms.

Introduction

Male genital ulcers (MGU) can result from numerous infective or non-infective agents and some of them are sexually transmitted or acquired (STU), while others (non-STU) are not.

However, in general usage, the term MGU is being equated with STU like syphilis, chancroid and genital herpes etc.[1] Moreover, most of the studies have focused on STUs only and hence the exact prevalence of MGU is difficult to determine. The annual incidence of genital

ulcers is estimated to be around 20 million cases per year. Similar prevalence rate for non-STU is not known. However, it is widely believed that STU are the leading cause of MGU.[1] Apart from causing huge psychosexual problems (male cause of dyspareunia, depression, relationship problems etc.),[2] they cause significant morbidity – both short term and in the long run (like tertiary syphilis) and sometimes, death (as in malignancy, if not treated).[3] In this era of HIV/ AIDS, MGU has assumed even more importance.[4] MGU has been associated with increased acquisition and transmission of the HIV. Persons with genital ulcers are at higher risk for acquiring HIV than persons without ulcers.[5] In a 2001 study in Uganda, the presence of MGU was associated with an almost fourfold increase in the probability of HIV transmission.[1] Moreover, HIV-infected persons with genital ulcers may transmit HIV more efficiently than patients without ulcers.[6] In a Ugandan cohort of HIV discordant couples, the probability of HIV transmission per coital act increased 2-fold in the presence of genital ulcer disease (GUD), whereas there was no increased risk of transmission for non-ulcer syndromes. Biologically the disrupted genital mucosa or skin provides a portal of entry for transmission for the virus, increasing the susceptibility or infectiousness of HIV.[7]

As HIV transmission is closely linked to STU, prevention of STU (sexually transmitted infections [STI]) and altering the behaviour that leads to it are integral parts of any HIV/AIDS prevention and control program. Early sexual debut, sex with high-risk partners or multiple partners, alcohol and/or drug abuse and irregular

use of condoms are linked to high risk of STI acquisition.[7,8] Awareness of sexual behaviour of a particular population is essential in formulating targeted STI and HIV/AIDS prevention strategies.

The study was conducted to find out the sexual behaviour pattern of male patients with genital ulcer(s) attending dermatology and STI outpatient department of a tertiary care centre of Eastern India.

Methods

Male patients presenting with genital ulcer(s) to dermatology out-patient department and STI clinic of a tertiary care centre of eastern India were subjected to a pretested open-ended questionnaire to identify the sexual behaviour that predisposed them to STIs as a part of their risk assessment. Illiterate patients were interviewed and their response was recorded. In this study, ulcers and erosions were considered together as "ulcer". Those having genital ulcer and giving consent for participating in the study were included in the study. Scope of questions, included personal history, number of sexual partners, use of condoms, exposure to commercial sex workers, indulgence in alcohol and one night stands. Their diagnosis was based on history, clinical findings and laboratory confirmation. They all had counseling sessions. The study was conducted over a period of one year and at the end of study period, data was analyzed.

Results

In this study, 117 patients MGU were found among 22,528 male patients (1,982 from STI

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Table 1 Demographic profile of male genital ulcer (MGU) and comparison of sexually transmitted ulcer (STU) and nonsexually transmitted ulcer (Non-STU).

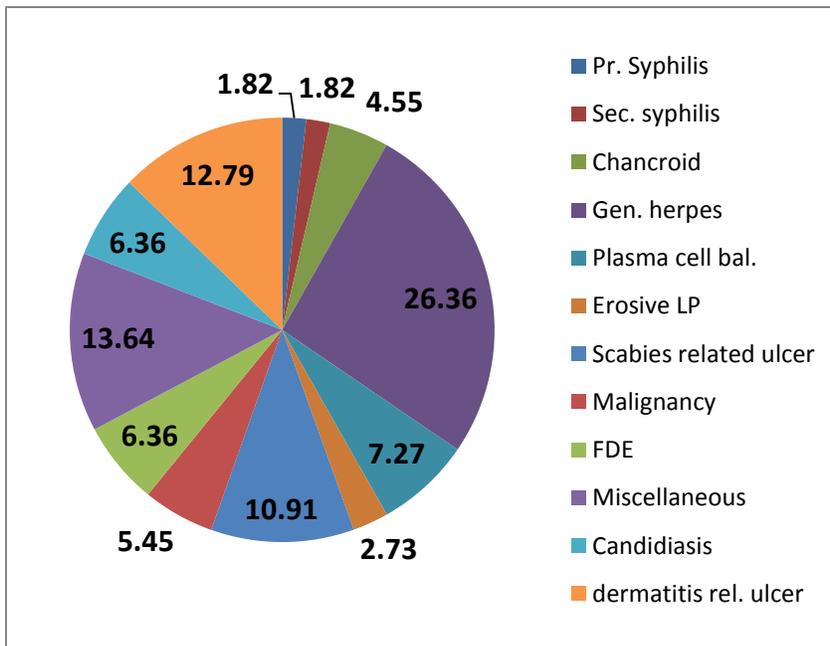| Data	MGU (n=110)	STU (n=38)	Non-STU (n=72)
Age (years)			
Range	3-62	22-61	3-62
Mean ± SD	34.74 ± 13.04	35.76 ± 9.69	34.18 ± 14.53
Median	35.00	35.00	35.00
Religion			
Hindu (%)	92 (83.64%)	32 (84.21%)	60 (83.33%)
Muslim (%)	18 (16.36%)	6 (15.79%)	12 (16.67%)
Education			
Illiterate (%)	25 (22.73%)	9 (23.68%)	16 (22.22%)
Primary (%)	24 (21.82%)	13 (34.21%)	11 (15.28%)
Secondary (%)	25 (22.73%)	7 (18.42%)	18 (25%)
Higher secondary (%)	20 (18.18%)	5 (13.16%)	15 (20.83%)
Graduate (%)	15 (13.64%)	3 (7.89%)	12 (16.67%)
Postgraduate (%)	1 (0.91%)	1 (2.63%)	0
Monthly income (thousands)			
Range	0-23	0-23	0-12
Mean ± SD	3.31 ± 3.11	3.46 ± 3.84	3.24 ± 2.68
Median	2.50	2.50	2.25
Residence			
Urban (%)	79 (71.82%)	32 (84.21%)	47 (65.28%)
Rural (%)	31 (28.18%)	6 (15.79%)	25 (34.72%)
No. of persons staying away from native place (%)	52 (47.27%)	23 (60.53%)	29 (40.28%)
Mean duration of stay away from native place (years) ± SD	8.80 ± 11.24	12.89 ± 12.55	6.63 ± 9.90
Marital status			
Married (%)	64 (58.18%)	18 (47.37%)	46 (63.89%)
Unmarried (%)	26 (23.64%)	7 (18.42%)	19 (26.39%)
Divorced/ wife stays away (%)	20 (18.18%)	13 (34.21%)	7 (9.72%)

Figure 1 Relative prevalence of different male genital ulcers among study population.

Table 2 Occupational profile of patient in MGU, STU and Non-STU.

	MGU (n=110)	*STU (n=38)*	*Non-STU (n=72)*
Non-skilled labour	69 (62.2%)	20 (52.63%)	49 (68.06%)
Driver	16 (14.5%)	9 (23.68%)	7 (9.72%)
Skilled labour	11 (10.0%)	4 (10.53%)	7 (9.72%)
Non working	11 (10.0%)	3 (7.89%)	8 (11.11%)
Massage parlour	2 (1.8%)	1 (2.63%)	1 (1.34%)
Gold jeweler	1 (0.9%)	1 (2.63%)	0

MGU = male genital ulcer, STU = sexually transmitted ulcer, non-STU = nonsexually transmitted ulcer

Table 3 Sexual history: MGU, STU, and Non-STU.

	MGU (n=110)	*STU (n=38)*	*Non-STU (n=72)*
H/o exposure - yes	59 (53.15%)	37 (97.44%)	22 (22.22%)
No of partner			
Mean ± SD	1.46 ± 1.9	3.03 ± 1.87	0.61 ± 1.28
Median	1	2	0
5 or more	21 (19.09%)	17 (44.73%)	4 (5.55%)
Partner			
Commercial sex worker	41 (69.49%)	30 (78.95%)	11 (68.75%)
Colleague	27 (45.76%)	10 (26.32%)	7 (43.75%)
Casual	6 (10.17%)	5 (13.16%)	1 (6.25%)
Misc.	5 (8.47%)	4 (10.53%)	1 (6.25%)
Nature of exposure			
Oral/ Anal/ Both	14	9	5
MSM	2	1	1
Bestiality	1	0	1
Knowledge of condom	76 (68.47%)	22 (56.41%)	54 (75%)
Use of condom			
No	26 (23.42%)	18 (46.15%)	8 (11.11%)
Irregular	28 (25.23%)	19 (48.72%)	9 (12.5%)
Intake of alcohol/drug	30 (27.03%)	22 (56.41%)	8 (11.11%)
Interval between exposure and ulcer			
Could not be determined	39 (35.14%)	22 (56.41%)	17 (23.61%)
Mean ± SD (days)	3.41 ± 10.46	7.26 ± 13.63	1.33 ± 7.56

MGU = male genital ulcer, STU = sexually transmitted ulcer, non-STU = nonsexually transmitted ulcer

clinic and 20,546 from Dermatology Outpatient Department) attending a tertiary care hospital of eastern India in 303 working days over a period of one year. Seven cases were excluded from study and a total of 110 patients were included in study for analysis. Relative incidence rate of MGU (110 patients) among male patients attending Dermatology OPD and STI clinic (22,528 patients) were found to be 4.88 per 1000. Among 110 MGU patients, 38 patients were classified as sexually transmitted ulcer (STU), constituting 34.55% of total MGU. Rest 72 (65.4%) patients were non-sexually transmitted ulcer (Non-STU). Genital herpes is the leading cause of MGU (26.4%). Other STU constitute 8.2% of MGU- primary and secondary syphilis 1.8% each and chancroid 4.5%. Other

leading causes of MGU include miscellaneous group (13.6%), dermatitis related ulcer (12.8%), scabies related ulcer (10.9%), Zoon's balanitis (plasma cell balanitis) (7.3%), candidiasis (6.4%), fixed drug eruption (6.4%), Malignancy (squamous cell carcinoma) (5.4%) and erosive lichen planus (2.7%).

MGU is more common in middle-aged persons with a mean age of 34.74 years. When subgroups were considered, the mean age of onset was bit higher for STU as compared to Non-STU (35.76 and 34.18, respectively). Majority of the patients in all categories were Hindus and they constituted 83.6%, 84.2%, and 83.33% of MGU, STU and Non-STU patients, respectively. Around 22.7%, 23.7% and 22.2%

of MGU, STU, and Non-STU were illiterate. Most of the MGU patients (71.8%) were from urban areas. This urban localization of cases is much more pronounced in STU (84.2% in STU and 65.3% in Non-STU).

The proportion of MGU patients that were unmarried, divorced, or staying alone away from wife was 41.8%. Similar figures for STU and Non-STU are 52.6% and 36.1%, respectively. Positive history of sexual exposure (defined in this study as history of sexual act with someone who is not the regular partner) was found in around 53.1% of MGU patients. Similar history was found in 97.4% and 22.2% of STU and Non-STU, respectively. When details of sex partners were analyzed, it was found that majority of the sex partners were commercial sex workers (CSW) (69.5%, 78.9%, and 68.7% in MGU, STU, and Non-STU, respectively). CSW were the major sex partner in Both STU and Non-STU groups. Nature of exposure too was analyzed to find, if any, relationship with STU. Oral/ Anal/ both were found in nine of STU patients while similar exposure was found in five of Non-STU patients. MSM was found in one of each STU and Non-STU patients.

Knowledge of condoms and its protective role in STI was found in 68.5%, 56.4%, and 75% in MGU, STU and Non-STU patients, respectively. It was significantly higher in Non-STU group. It is worthy to note that knowledge of condom does not always lead to its use, when it is required. Irregular use of condom was found in a large number of patients (25.2%, 48.7%, and 12.5% in MGU, STU, and Non-STU, respectively). Once again, irregular use was found in a significant higher number of STU patients.

Discussion

Among 110 patients included in our study for final analysis, 38 patients were classified as sexually transmitted ulcer (STU), contributing 34.55% of total MGU. Rest 72 patients (65.45%) were Non- sexually transmitted ulcer (Non-STU). Our study reports Non-STU being more common than STU. This is in contrast with widely accepted view of GUD.[1]

The leading cause of ulcers among MGU had been shown in **Figure 1**. Genital herpes is the leading cause of MGU (26.4%). Other STU constitute 8.2% of MGU - primary and secondary syphilis 1.8% each and Chancroid 4.5%. No case of donovanosis and lymphogranuloma venereum had been found in our study. Most studies post 1990s had reported predominance of genital herpes.[1,9] There has been a constant decline in STU of bacterial origin and rise in viral STI.[1,9] Many factors have been responsible for this change. Some of them are widespread antibiotic use, behavioral changes, and syndromic management of GUD.[1,4] Other leading causes of MGU include miscellaneous group (13.6%), Dermatitis related ulcer (12.8%), Scabies related ulcer (10.9%), Zoon's balanitis (plasma cell balanitis) (7.3%), candidiasis (6.4%), fixed drug eruption (FDE) (6.4%), malignancy (squamous cell carcinoma) (5.4%) and erosive lichen planus (2.7%). Miscellaneous group included four cases of papulonecrotic tuberculide, two cases each of lichen sclerosus et atrophicus, herpes zoster and bullous pemphigoid, and one case each of trauma during sexual activity, Behcet disease, circinate balanitis, pemphigus vulgaris and Stevens-Johnson syndrome. On the other hand, dermatitis related ulcers included five cases each of irritant contact dermatitis and allergic contact dermatitis, three cases of scrotal dermatitis and one case of seborrheic dermatitis.

The demographic profiles of MGU, STU, and Non-STU have been summarized in **Table 1**. MGU is more common in middle-aged persons with a mean age of 34.74 years. When

subgroups were considered, the mean age of onset was bit higher for STU as compared to Non-STU (35.76 and 34.18 respectively). Majority of the patients in all categories were Hindus and they constituted 83.64%, 84.21%, and 83.33% of MGU, STU and Non-STU patients respectively. The low prevalence of GUD in Muslims may be attributed to circumcision, widely practiced among them. Circumcision has been reported to have a protective role in various GUD.[1,4] However, this result needs to be confirmed in population-based studies. Our OPD caters to both Hindu and Muslim population, but their relative attendance is not known. This was one of the limitations of our study. Most of the MGU patients (71.8%) were from urban areas. Our OPD is located in a metropolitan city and hence more accessible to urban population rather than to rural population. However, the relative attendance of urban and rural population in our OPD is not known and hence, this assumption cannot be substantiated. This urban localization of cases is much more pronounced in STU (84.2% in STU and 65.3% in Non-STU). One possible explanation is availability of commercial sex workers (CSW) in and around city. As CSW are major source of infection in STU (as discussed later), STU patients are more likely to be from urban areas.

Around 22.7%, 23.7% and 22.2% of MGU, STU, and Non-STU were illiterate. This can be explained by the fact that most of the patients attending our OPD are of lower socioeconomic status that often lack formal education. When no education and primary education were considered together, 44.55% of MGU population was having primary education or less. However, there is no significant difference in two groups-STU and Non-STU. It implies that formal education is not a necessity for sex education.

Most of the MGU patients were working- non-skilled labour (62.16%) and driving (14.55%) were two most common professions. Similar

pattern was observed in STU too. However, drivers constituted around 23.68% of total, thereby making second most common profession in STU. More or less similar pattern is observed in Non-STU too. However, drivers do not feature in three most common profession lists. Interestingly, jeweler and masseur were found in STU only- one each. All these findings have been summarized in Table 2.

Most of the patients with MGU had low monthly income with a mean of 3.31 thousands. Similar is case with STU and Non-STU no significant difference was noted in these groups. Similar findings have been reported in other studies too.[10] A large number of MGU (47.27%) were found in those persons who were staying away from their native place. Similarly 60.53% in STU patients and 40.28% in Non-STU are those persons who were staying away from home. The mean duration of stay away from native place was 8.80 years, 12.89 years and 6.63 years in MGU, STU, and Non-STU respectively. Again, mean duration of stay was more in STU as compared to Non-STU. Growing trend of immigration into city may be responsible for this. A whopping 60.5% of such patients in STU stress the fact the immigrants should be considered as a risk group for developing STU. Such findings have not been reported. Mean duration of stay away from home was highest for primary syphilis (20.0 years), followed by malignancy (18.33 years) and chancroid (17.40 years).

The proportion of MGU patients that were unmarried, divorced, or staying alone away from wife was 41.8%. Such patients could be included in risk group for STU. Paz-Bailey *et al.*[9] have reported 87.1% of study population having regular sex partner. Similar figures for STU and Non-STU are 52.6% and 36.1% respectively. High number of "single" male with no regular sex partner in STU group implies that "Not having regular sex partner" is a risk factor for

STU in sexually active males. Highest number of such patients was found in genital herpes. However, similar high number of such patients was noted in scabies related ulcer too. This can be explained by inclusion of ulcers seen in scabies in scabies related ulcer group and many of such patients included children.

Positive history of sexual exposure (defined in this study as history of sexual act with someone who is not the regular partner) was found in around 53.1% of MGU patients (**Table 3**). Similar history was found in 97.4% and 22.2% of STU and Non-STU respectively. However, this data may not be true representative of the scenario. It was found that many Non-STU patients presented to OPD because of history of exposure. History of exposure made them apprehensive about acquiring HIV infection and hence, such patients sought medical services more than Non-STU patients without any history of sexual exposure did. Paz-Bailey *et al*.[9] have reported history of sexual exposure in 27.4% cases and among these, history of acquiring new partner was present in 27.6% cases. Regarding number of partners, mean number of partners was 1.46, 3.03, and 0.61 for MGU, STU, and Non-STU, respectively. Clearly, STU patients have more number of partners than Non-STU patients. So higher number of sex partners is a definite risk factor for STU. In fact, number of partners more than five was found in 17 (44.7%) of the STU patients. In contrast more than five sex partner was found in only four (5.5%) of Non-STU patients. Hence, more than five sex partners are more in favour of STU. Mean number of partners was more in cases of STU. It was 5.0 in secondary syphilis and 3.5 in primary syphilis. Among Non-STU, erosive LP and malignancy had higher mean number of partners (1.33 and 2.0, respectively). When details of sex partners were analyzed, it was found that majority of the sex partners were CSW (69.5%, 78.9%, and 68.7% in MGU, STU, and Non-

STU, respectively). CSW were the major sex partners in both STU and Non-STU groups; however significantly higher in STU groups. Similar findings have been documented in study by Behets *et al*.[11] They, too, have reported CSW as major group among sexual partners. The reason may be their easy availability. The other common sex partners include colleagues or co-workers. Nature of exposure, too, was analyzed to find, if any, relationship with STU existed. Oral/ anal/ both modes were found in nine of STU patients while similar exposure was found in five of Non-STU patients. MSM was found in one of each STU and Non-STU patients. MSM is known to be a risk factor for STU. However, this study did not show this high-risk nature of MSM. This can be explained by the fact that MSM are one of the groups where targeted intervention is employed under NACO program and hence, most of them do not attend our OPD. That is the reason we got small sample size of MSM and so, any rational conclusion is not possible. History of bestiality was found in only one patient with Non-STU. Most common partners were CSW followed by colleagues. Sexual activity with stranger (high-risk behavior) was noted in one case of primary syphilis. Oral/ anal or both modes of penetration was seen most commonly in genital herpes and traumatic ulcer. MSM (male having sex with male) was observed in two cases - one in genital herpes and the other in herpes zoster (miscellaneous group). Knowledge of condoms and its protective role in STI was found in 68.5%, 56.4%, and 75% in MGU, STU and Non-STU patients respectively. It was significantly higher in Non-STU group. Hence, it can be concluded that knowledge of condom is essential to control of STU. It is worthy to note that knowledge of condom does not always lead to its use, when it is required. Irregular use of condom was found in a large number of patients (25.2%, 48.7%, and 12.5% in MGU, STU, and Non-STU, respectively). Once again, irregular

use was found in a significant higher number of STU patients. Paz-Bailey et al have shown that only 38.2% of study population was practicing regular use of condoms. Among the rest, 30.3% were practicing irregular use of condoms and 31.5% never used condoms.[9] Interval between last exposure and appearance of lesion could not be determined in many cases (35.14%, 56.41%, and 23.61% in MGU, STU, and Non-STU, respectively). In the group of patients, where it could be determined, the mean day of presentation to us was higher in STU group (7.26 ± 13.63) than in Non-STU group (1.33 ± 7.56). Behets *et al*.[11] have reported the mean duration between most recent exposure and presentation as 37.4 days.

Conclusions

Majority of the MGU patients were Hindus, urban, illiterate or having primary education and low monthly income. Most of them were non-skilled labors. MGU was more common among immigrants and was common among unmarried or divorced or among persons staying away from their wife. History of sexual exposure was seen in all groups - MGU, STU, and Non-STU. Hence, history of sexual exposure alone cannot differentiate between STU and Non-STU. Majority of sex partners in STU were CSW. Therefore, sexual contact with CSW is an important risk factor for STU. Majority of sexual contacts in Non-STU, too, were CSW. Hence, sexual contact with CSW alone cannot differentiate between STU and Non-STU. Awareness of condoms among MGU patients was seen in majority of MGU patients. However, many of them practiced irregular use of condom.

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