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### Original Article

## Patterns & trends of deformities in 215 leprosy patients central karnataka –india.

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#### ARTICLE INFO

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#### ABSTRACT

A study of 215 leprosy affected patients attending the out patient department of dermatology, venereology and leprosy of Bapuji Hospital attached to J.J.M Medical College at Davangere revealed that 22% had deformities. The patient's sex, type of disease, occupation and educational status seemed to influence pattern of leprosy deformities.

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### 1. Introduction

Deformity is defined as an alteration in the form, shape or appearance of the part of the body i.e., deformity is visible.<sup>1</sup> The objective of the present study was to ascertain the correlation between socio-demographic factors and the pattern of deformities in them.

### 2. Material and method:

The study was conducted at the out patient department of dermatology, venereology and leprosy of Bapuji Hospital at J.J.M. Medical College, Davangere between the period April 2008 and March 2011 i.e., for 3 years.

The 215 patients were classified according to the consensus classification of the Indian Association of Leprologists<sup>2</sup> and deformities as per WHO grading of deformity.<sup>3</sup> The sociodemographic and clinical details were recorded from the patients on a prestructured proforma

### 3. Results and discussion

The 215 study subjects included 152 males and 63 females and the overall deformity rate was 22.0%, where the prevalence of leprosy in general population is 0.78 per ten thousand in 2011 year.

The most common type of leprosy being borderline (BT) type in our study accounted for 61.8% of all the cases. The most prevalent deformity is trophic ulceration comprising 54.38%, followed by claw hand deformity 24.56%. The deformities were more with BT Hansen's i.e., 57.89%. Noordeen and Srinivasan reported a disability rate of 35.5% in a part of South India.<sup>4</sup>

**Table 1: Deformity According to type of leprosy**

| Type of leprosy | No. of pts | Type of deformity |    |    |   |    |   |   | Total |
|-----------------|------------|-------------------|----|----|---|----|---|---|-------|
|                 |            | T                 | C  | Ft | W | FP | L | R |       |
| IL              | 1          | -                 | -  | -  | - | -  | - | - | -     |
| TT              | 5          | -                 | -  | -  | - | -  | - | - | -     |
| Borderline      |            |                   |    |    |   |    |   |   |       |
| BT              | 133        | 21                | 6  | 2  | 1 | 1  | 1 | 1 | 33    |
| BL              | 42         | 4                 | 4  | 1  | - | -  | - | - | 9     |
| LL              | 17         | 3                 | 1  | -  | - | 1  | - | - | 5     |
| PN              | 17         | 3                 | 3  | 2  | 1 | -  | - | 1 | 10    |
| Total           | 215        | 31                | 14 | 5  | 2 | 2  | 1 | 2 | 57    |

\*\*\*\* T:Trophic ulcer, C:claw hand, Ft:Foot drop ,W:Wrist drop, FP:Facial palsy, L:Lagophthalmos, R:Reaction Hand

The youngest patient was 10 year old with BT Hansen's. The oldest patients being 75 years, one with BT Hansen's and other with BL Hansen's. The maximum deformities 33.33% were seen in the age group of 20-29 years followed by 28.07% in the age group > 50 years. Again among them, trophic ulceration was the commonest deformity. Deformities are not common in children, reason for this is that leprosy in them is often of self limiting type and there is no general progress of the disease. Further, disease is likely to be of short duration in children and so would not have spread widely in the body to produce deformities.<sup>1</sup> The increase in the deformity rate with age was probably due to combined effects of age and duration factors.<sup>5</sup>

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(11.11%) died within 1.15 to 2.15 Hours, 02 (11.11%) cases died within 3Hours of admission, 04(22.22%) cases died within 4.5 to 13 Hours of admission, 07 (38.88%) Cases died within 16 to 81.20 Hours. In 09 (49.99%) cases Total Hysterectomy was done. Maternal Mortality was 100% and Fetal Mortality was 100%. Uterine rupture was significantly associated with low socio-economic status, lack of antenatal care, Multigravidity, Maternal age group 30-32 years, 07 (38.88%) cases were due to Obstructed Labor. 11 (61.11%) cases were due to Uterine trauma caused by uterine manipulation by untrained dais. Uterine trauma caused by uterine manipulation by untrained Traditional Birth Attendants and obstructed labor was major a risk factors. All 18 (100%) cases were of Tribal women of remote areas. There has been considerable decline in Maternal mortality due to Rupture Uterus. In this study it is found that no case of maternal mortality due to Rupture Uterus has been recorded after December 2011.

#### **Government Medical Collage and the associated Maharani Hospital, Jagdalpur (Bastar), Chhattisgarh.**

**3.3 Data collection:** There were total 152 (n=152) cases of Maternal Mortality were studied. Out of these 152 (n=152) cases total Tribal patients were (n=140) and 12 (n=12) with a non-tribal background, admitted and managed in indoor wards between July 2007 and June 2012, and the relevant data was collected from the records of the Department of Obstetrics & Gynecology and Medical Records Department (MRD), Government Medical Collage and the associated Maharani Hospital, Jagdalpur (Bastar), Chhattisgarh

**Data Analysis:** Results were analyzed by using percentage and ratio.

#### **4. Results:**

Amongst total 152 (n=152) cases, Out of total 152 (n=152) cases, 140 (n=140) were of Tribal women and remaining (n=12) were of Non-Tribal women. [FIGURE 1]

There were 18 (27.36%) cases were due to Rupture Uterus. All 18 (27.36%) Rupture Uterus cases were Tribal women from remote areas. There was no case of Rupture Uterus among Non-Tribal women. [FIGURE 1]

The total number of uterine rupture cases was 18 out of 32824 deliveries. The incidence of uterine rupture was 1 in 1823 deliveries. [0.54 Per 1000 deliveries.]. The incidence of Rupture in the year 2007 was 1 in 906 deliveries. [1.10 Per 1000 deliveries], in the year 2008 was 1 in 5537 deliveries [0.18 Per 1000 deliveries], in the year 2009 was 1 in 906 deliveries [0.46 Per 1000 deliveries], in the year 2010 was 1 in 1157 deliveries [0.86 Per 1000 deliveries], in the year 2011 was 1 in 1451 deliveries [0.68 Per 1000 deliveries], in the year 2012 was 0 in 3933 deliveries [0.00 Per 1000 deliveries]. [CHART 1]

#### **2. Material and Method**

Majority cases belonged to 30 – 32 age group. Maximum 05 (27.77%) cases belonged to 30 – 32 age group, 04 (22.22%) cases between age group of 25 – 26, 03 (16.66%) cases were of 20 – 22, 03 (16.66%) cases were of 35 age, 02 (11.11%) cases were of 28 - 29 age group, 01 case of 23 years of age. [TABLE 1]

Majority cases were Multigravida. Maximum 08 (44.44%) cases were of Multigravida, 05 (27.77%) cases were of Grandmultigravida, then 4, (22.22%) cases were of Primigravida, and 1 of Greatgrandmultigravida (9th Gravida). [TABLE 1]

02 (11.11%) cases were educated up to 04 standard rest 16 (88.88%) were illiterate. Their monthly income was between Rs.1200 to Rs.2500 per month. 10 (55.55%) cases were Labor and 8 (44.44%) were Farmers. All cases were tribal women of low socioeconomic status.

All 18 (100%) were handled before admission into tertiary level care.

07 (38.88%) cases were due to Obstructed Labor. 11 (61.11%) cases were due to uterine trauma caused by uterine manipulation by untrained dais. Uterine trauma caused by uterine manipulation by untrained Traditional Birth Attendants and obstructed labor was major a risk factors. [DIAGRAMME 1]

All cases were unbooked. No Antenatal checkup was carried in all 18 (100%) cases.

All 18 (100%) cases were anemic. Human hookworm infection is a soil-transmitted helminth infection caused by the nematode parasites *Necator americanus* and *Ancylostoma duodenale*. It is a leading cause of anaemia and protein malnutrition, afflicting an estimated 740 million people in the developing nations of the tropics. The largest numbers of cases occur in impoverished rural areas of sub-Saharan Africa, Latin America, South-East Asia and China. *N. americanus* is the most common hookworm worldwide, while *A. duodenale* is more geographically restricted. [4]

13 cases (72.22%) were admitted in shock and rest 05 (27.77%) cases were admitted in very poor General condition.

10 (55.55%) cases were referred from other health facilities and 8 cases (44.44%) were admitted directly at tertiary care level.

In 02 (11.11%) died within 05minutes to 20 minutes of admission, 01 (5.55%) died within 50 minutes of admission, 02 (11.11%) died within 1.15 to 2.15 Hours, 02 (11.11%) cases died within 3Hours of admission, 04(22.22%) cases died within 4.5 to 13 Hours of admission, 07 (38.88%) Cases died within 16 to 81.20 Hours.

In 09 (49.99%) cases Total Hysterectomy was done.

Maternal Mortality was 100% and Fetal Mortality was 100%.

Uterine rupture was significantly associated with low socio-economic status, lack of antenatal care, Multigravidity, Maternal age

**Table 2: Deformity According to age of patient**

| Age group (yrs) | No. of pts |    | Type of deformity |   |    |   |   |   | Total |
|-----------------|------------|----|-------------------|---|----|---|---|---|-------|
|                 | T          | C  | Ft                | W | FP | L | R |   |       |
| 10-19           | 22         | -  | 2                 | 1 | -  | - | - | - | 3     |
| 20-29           | 64         | 9  | 5                 | 1 | 1  | 1 | 1 | 1 | 19    |
| 30-39           | 46         | 5  | 5                 | 1 | -  | - | - | - | 11    |
| 40-49           | 38         | 5  | 2                 | - | 1  | - | - | - | 8     |
| > 50            | 45         | 12 | -                 | 2 | -  | 1 | - | 1 | 16    |
| Total           | 215        | 31 | 14                | 5 | 2  | 2 | 1 | 2 | 57    |

The study included 70.69% of male patients and 29.30% of female patients among 215 total patients which gives a M:F ratio of 2.3 :1. A study of 600 cases at Jamnagar, Gujarat in 2002 showed M:F ratio as 3:1.6 The present study showed male patients had more deformities i.e., 75.44% and female patients suffered with 24.56% of deformities. Lesser exposure to hard work has been implicated as one of the possible factors that may account for lower deformity rate among female patients. The prevalence of disease is not only lower in women, but women also tend to suffer more often from the benign form like the non-lepromatous type. The women also tend to suffer less nerve damage compared to men. The reason for the favoured position of women is not known.<sup>1</sup>

**Table 3: Deformity According to sex of patient**

| Sex of patient | No. of pts |    | Type of deformity |   |    |   |   |   | Total |
|----------------|------------|----|-------------------|---|----|---|---|---|-------|
|                | T          | C  | Ft                | W | FP | L | R |   |       |
| Male           | 152        | 21 | 12                | 5 | 2  | 2 | 1 | - | 43    |
| Female         | 63         | 10 | 2                 | - | -  | - | - | 2 | 14    |
| Total          | 215        | 31 | 14                | 5 | 2  | 2 | 1 | 2 | 57    |

In this study, illiterates were 44.65% and literates were 55.35%. The educational status did not seem to influence the prevalence of deformities in them in our study.

**Table 4: Educational status and type of deformities**

| Education  | No. of pts |    | Type of deformity |   |    |   |   |   | Total |
|------------|------------|----|-------------------|---|----|---|---|---|-------|
|            | T          | C  | Ft                | W | FP | L | R |   |       |
| Illiterate | 96         | 17 | 5                 | 3 | 1  | 1 | 1 | 1 | 29    |
| Literate   | 119        | 14 | 9                 | 2 | 1  | 1 | - | 1 | 28    |
| Total      | 215        | 31 | 14                | 5 | 2  | 2 | 1 | 2 | 57    |

Deformities were more in patients who were professionals by occupation (40.35%) as labourers, barbers, mason etc. with trophic ulceration (47.82%) and claw hand deformity (34.8%). Heavy manual labour and specific occupations causing reported trauma to an anaesthetic part are likely to lead to ulceration, tissue damage and even mutilation. Similarly, an occupation involving a lot of walking, climbing, running.<sup>1</sup>

**Table 5: Occupation and type of deformities**

| Occupation                    | No. of pts |    | Type of deformity |   |    |   |   |   | Total |
|-------------------------------|------------|----|-------------------|---|----|---|---|---|-------|
|                               | T          | C  | Ft                | W | FP | L | R |   |       |
| Student                       | 24         | 2  | 2                 | - | -  | - | - | 1 | 5     |
| Housewife                     | 40         | 7  | 1                 | - | -  | - | - | - | 8     |
| Agriculture<br>farmer /Coolie | 78         | 9  | 3                 | 4 | -  | 1 | 1 | 1 | 19    |
| Business                      | 21         | 2  | -                 | - | -  | - | - | - | 2     |
| Professionals                 | 51         | 11 | 8                 | 1 | 2  | 1 | - | - | 23    |
| Total                         | 215        | 31 | 14                | 5 | 2  | 2 | 1 | 2 | 57    |

As borderline Hansen's is the commonest type of leprosy so is the number of deformities in that type. This prevalence of maximum number of deformities in the 20-29 age group might hinder the working capacity of these individuals who are economic backbone of society. The reason for more prevalence of deformities in > 50 years age group may be ignorance regarding the disease by themselves and family members. The higher prevalence of deformities in male patients may be due to exposure to more outdoor activities. Education status did not influence much on prevalence of deformities in our study. The presence of increased number of deformities in patients who are professionals by occupation might affect their livelihood.

While early detection and prompt T/t can prevent the onset of deformities, worsening of existing deformities may be prevented if patients are re-trained in their existing skills and taught preventive measures and use of devices.

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