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ORIGINAL ARTICLE

STUDY ON CHRONIC LYMPHEDEMA

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ABSTRACT: INTRODUCTION: Little attention has been given to the impact of long standing lymphedema and its complications. **AIM:** The aim of the study was to prepare a profile of long standing lymphedema complications **PATIENTS AND METHODS:** A total of 88 patients with lymphedema were included in this hospital based descriptive study. The study was designed to include age, sex, etiology, duration, prophylaxis and complications observed in each patient and entered into a proforma separately. **RESULTS:** A total of 88 cases studied, 74 cases are lower limb and 14 cases are upper limb lymphedema. Among 74 cases of lower limb lymphedema 4 cases occurred after inguinal lymphadenectomy and upper limb lypmhedema are secondary to postmodified radical mastectomy. A total of 40 cases in 88 patients had complications of lymphedema, among 88 cases studied 54 male and 34 were female patients 29 patients had cellulitis 3 patients had infected ulcer with maggots and 1 patient had lymphoma, among 88 patients 50 patients was on regular benzathine pencillin prophylaxis. Incidence of complications is 37.5 percent and incidence of complication in patient on penicillin prophylaxis 28.4 percent. Our study does not show no significant statistical correlation between benzathine prophylaxis and occurrence of complications. (pvalue0.727). **CONCLUSION:** The study provided relevant information about complications of lymphoedema, Pencillin prophylaxis is not found effective in reducing recurrent cellulitis episodes in chronic lymphedema. In our series we found one case of lymphoma (Diffuse large cell lymphoma) developing in lymphedematous tissue of lower limb.

INTRODUCTION: Lymphedema is a chronic debilitating condition that may lead to significant physical and psychological morbidity. Lymphedema is a debilitating condition, manifesting in edematous swelling due to excess accumulation of lymph fluid in tissues caused by inadequate lymph drainage. Although other forms of edema cause limb swelling, only lymphedema will produce brawny, hard and warty changes of the skin and subcutis that limits the presence of pitting. Lymphedema may be defined as an edema of greater than 3 months duration that does not subside upon elevation of the affected site, or as the swelling of soft tissues resulting from the accumulation of protein-rich interstitial fluid caused by a low output failure of lymph flow. This article aims to provide surgeons with a greater understanding of the etiology of lymphedema and increased knowledge for managing this condition and to identify factors affecting occurrence of complications. The literature relating to the prevalence of lymphedema is limited.

METHODS: This observational study was conducted after approval by Institutional Ethics Committee. The study was conducted in the hospitals of Kasturba Medical College, Mangalore. All patients who came with chronic lymphedema (duration more than 6 months) from December 2011 to October 2013 were included in the study. A detailed proforma was developed to record information Subjects were then subjected to (after written consent) full history was taken on the following Age, residence, occupation, family history of similar condition, duration of the condition,

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symptoms suggesting ADLA attacks, clinical examination done for: Limb lymphedema, elephantiasis and estimation of the site (unilateral or bilateral limb affection) and doppler ultrasound on the affected leg to exclude deep venous thrombosis and varicosities as a cause of swollen leg.

INCLUSION CRITERIA:

1. All patients who came with chronic lymphedema (duration more than 6 months) from December 2011 to October 2013 were included in the study.

EXCLUSION CRITERIA:

1. Hepatic
2. Cardiac
3. Renal
4. Nutritional
5. DVT
6. Chronic Venous Insufficiency
7. Hormonal
8. Pregnancy

Collected data was analysed by frequency percentage, mean and standard deviation. Chi square test and Fishers test were used to ascertain the significance. SPSS 13 was used to analyse the data.

OUTCOME MEASURES:

RESULTS: During the period of study a total of 88 patients came with chronic lymphedema in the various surgical units of the three hospitals. Of these, 35 patients had complications. Out of 88 cases 35(39.8%) cases presented with complications, of these 24(68.6%) were males and 11(31.4%) were females. The most frequent age group was 51-60 years accounting for 30.7% of cases. 88.6% of patients were more than 40 yrs. of age. Mean age of the patient was 55.81. Of the total 88 cases 54 males (61.4%) and 34 females (38.6%) were females. 44.4% of the males had complications as against 32.4% of females. In majority i.e., 84.1% of cases lower limb got affected compared to 15.1% cases in which upper limb was involved. In 6.8% both lower limbs was diseased. Majority of patients with have duration more than 5 years. 67.1 percent of cases had duration of illness more than 5 years. 65.8 percent of complicated cases had duration of illness more than 10 years duration.

Out of 88 cases 73(83%) cases are due to filariasis, 14 (15.9%) cases due to post modified radical mastectomy and 1 case (1.1%) was due massive loss of subcutaneous tissue following trauma. Among 35 complicated cases of lymphedema, most common complication was cellulitis at 85.7%, followed by infected ulcers (11.4%) and lymphoma (2.9%). Among 88 patients with chronic lymphedema 47(53.4 percent) patients does regularly limb elevation while sleeping. Occurrence of complications in patients doing limb elevation regularly was 12.8 percent and in patient not doing limb elevation had 70.7 percent incidence of complications. Occurrence of complications is less in patients those who doing regular limb elevation during sleep.

Benzathine pencillin prophylaxis was performed by 61 patients regularly in 88 patients came to hospital with chronic lymphedema. There is no significant statistical correlation between benzathine prophylaxis and occurrence of complications. Regular crepe bandage or graded

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compression stockings used by 38.6 percent of cases. Incidence of complication is 8.8 percent in patients using bandage and 59.3 percent in patients not using crepe bandage. Crepe bandage use significantly reduces incidence of complications.9 patients used graded compression stockings and 25 used crepe bandage due less cost of crepe bandage. 67 patients do daily local care that is almost 76 percent of all cases**.** Occurrence of complications was statistically significant and correlated with duration of illness, local care, regular crepe bandage use and limb elevation. Pencillin prophylaxis was found insignificant. Out of 88 cases studied 8 cases underwent surgery. Infected ulcer cases (4 cases) underwent debridement and split skin grafting, Charles operation was performed in 3 cases and 1 patient underwent local excision of tumor.

DISCUSSION: The literature relating to the prevalence of lymphedema is limited.[1] Moffatt and colleagues attempted to gauge the prevalence of chronic edema as a surrogate for lymphedema, within the population of southwest London. Within the community of 619, 000 adults, 823 were found to have chronic edema. The estimated prevalence of chronic limb edema was 1.33 out of 1000 people within the population, increasing to 5.4 out of 1000 in patients over 65 years of age. In our study most frequent age group was 51-60 years accounting for 30.7% of cases. 88.6% of patients were more than 40 yrs. of age. Mean age of the patient was 55.81.This study included 88 lymphedema patients. Of these patients, 54 males (61.4%) and 34 females (38.6%) were females; male to female ratio was approximately 1.58:1.

This was in agreement with the findings of Onapa et al. (2001b), prevalence of limb elephantiasis was considerably higher among males than females.[2] This is related to differences in the "preferred" anatomic location of the adult filarial worm between men and women and biologic factors, particularly pregnancy, that further stress the lymphatic system in women.[3] 44.4% of the males had complications as against 32.4% of females. In the present study, the majority presents with unilateral lymphedema (93.2%). 84.1% of cases lower limb got affected compared to 15.1% cases in which upper limb was involved. In 6.8% both lower limbs was diseased.

These results were in accordance with Chandrasena et al who found unilateral lymphedema in 85.7%.[4] In the present study, shows changes associated with lymphedema, starting grade II in which the limb is swollen; however, the skin showed no changes. In grade III, the skin starts to thicken with increased skin folds. Subsequently, grade IV (elephantiasis) with lymphedema, extended to the knee, thickened skin, more deep skin folds, petechial hemorrhage over tibia and showed elephantiasis case with huge elephantoid skin mass, multiple areas with hypopigmentation, papillomatous changes, and scarring. In our study majority of patients have duration of lymphedema more than 5 years. 67.1 percent of cases had duration of illness more than 5 years. 65.8 percent of complicated cases had duration of illness more than 10 years duration.

The p value of association of duration of lymphedema with complications was statistically significant. As duration of lymphedema increases occurrence of complications increases.

Among 88 patients with chronic lymphedema 47(53.4 percent) patients were regularly doing limb elevation while sleeping. Upper limb lymphedema patients not practices limb elevation while sleeping. Out of 88 cases 73(83%) cases are due to filariasis, 14 (15.9%) cases due to post modified radical mastectomy and 1 case (1.1%)was due massive loss of subcutaneous tissue following trauma. Postsurgical lymphedema cases observed in post modified radical mastectomy and post traumatic

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case. The most common complication was cellulitis at 85.7%, followed by infected ulcers (11.4%) and lymphoma (2.9%). Occurrence of complications was statistically significantly correlated with duration of illness (P value 0.00), local care (P value 0.004), regular crepe bandage use (P value 0.00) and limb elevation (P value 0.00).Regular local care of diseased part, crepe bandage or stockings and limb elevation reduces incidence of complications. Crepe bandage use and local hygiene measures matches with control trials comparing the effects of long term antibiotics to simple washing [155] have shown that washing alone may decrease the number of inflammatory episodes per annum.

Shenoy et al,[5] also found that neither DEC nor antibiotics altered DLA attack frequency in their study of 65 patients with filarial lymphedema. They found that 'simple hygienic measures combined with good foot care and local antibiotics/fungal cream when required were effective at reducing the number of DLA attacks'. Similarly the experience of Dreyer et al., [6] in Brazil suggests that simple hygiene can protect against infections. According to Vignes et al study benzathine pencillin prophylaxis reduces incidence of recurrent episodes of cellulitis in chronic lymphedema paients.[7] In our study regular benzathine penicillin prophylaxis was performed by 61 patients out of 88 patients who came to hospital with chronic lymphedema. Our study does not show any significant statistical correlation between benzathine prophylaxis and occurrence of complications. (p value 0.727).

CONCLUSIONS: Chronic lymphedema is common in patients with age more than 40 and mean age is 55.81. Incidence of chronic lymphedema and its complications are commoner in males. Unilateral involvement of limb is common and lower limb lymphedema is commoner than upper limb lymphedema majority of patients have duration of lymphedema more than 5 years. With increase in duration of lymphedema incidence of complications increases.

Most common cause for chronic lymphedema is filariasis followed by post modified radical mastectomy cases. Most common cause of upper limb lymphedema is due to modified radical mastectomy. Most common complication in chronic lymphedema is cellulitis followed by infected ulcers. Regular local care of diseased part, crepe bandage or stockings and limb elevation reduces incidence of complications. Pencillin prophylaxis is not found effective in reducing recurrent cellulitis episodes in chronic lymphedema. In our series we found one case of lymphoma (Diffuse large cell lymphoma) developing in lymphedematous tissue of lower limb.

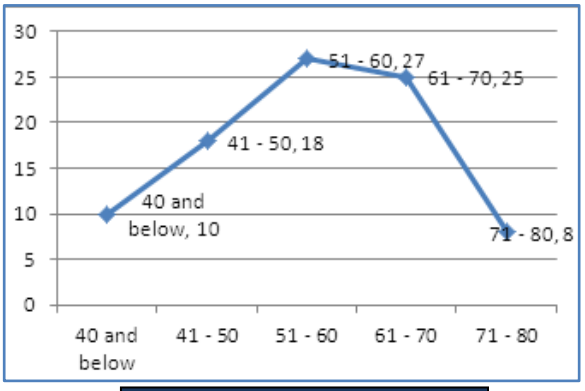

Fig. 1: Age Distribution

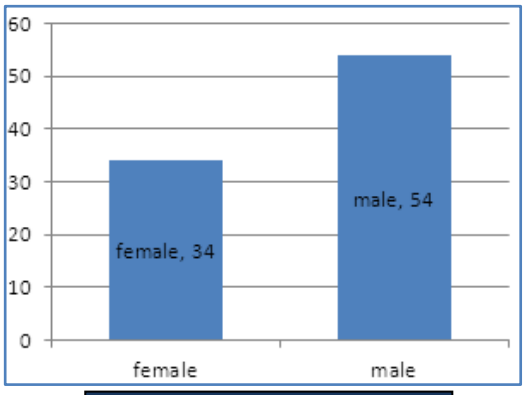

Fig. 2: Sex distribution

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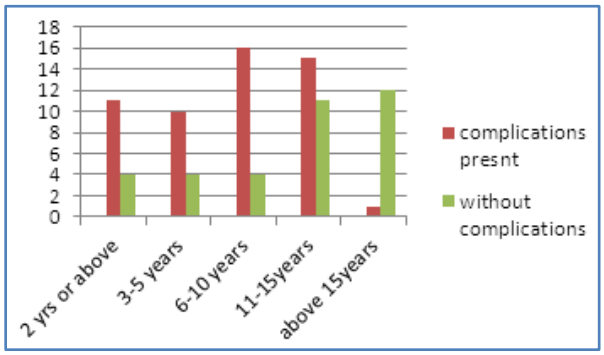

Fig. 3: Incidence of complications Vs duration of disease

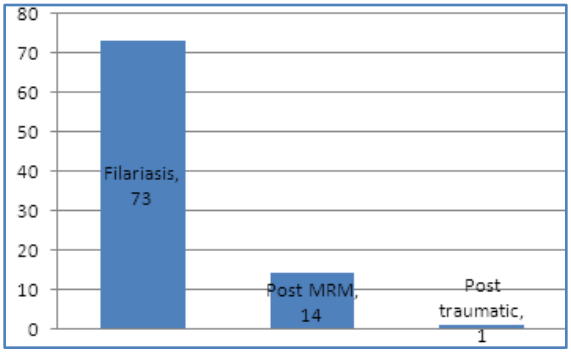

Fig. 4: Causes of chronic lymphedema

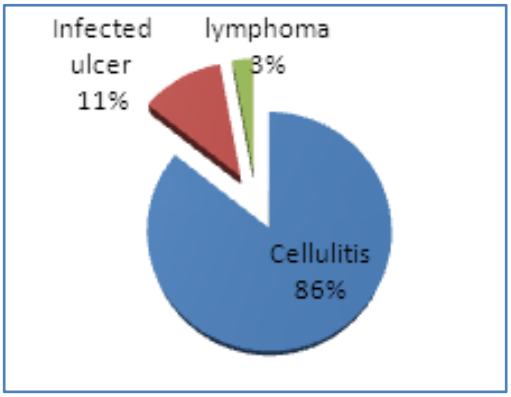

Fig. 5: Chart 8 Distribution of complications

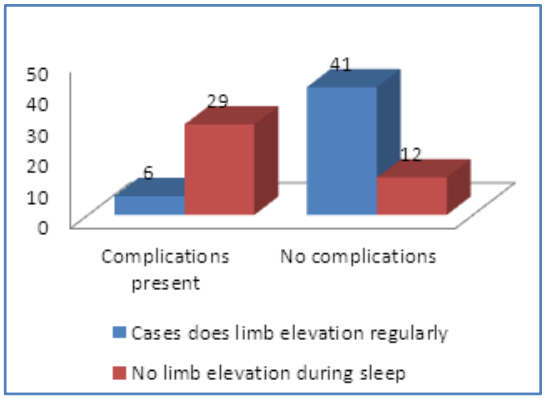

Fig. 6: Relationship between Limb elevation and occurrence of complication

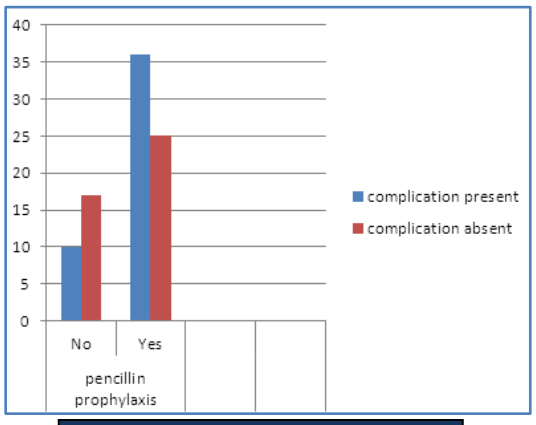

Fig. 7: Number of cases vs pencillin prophylaxis

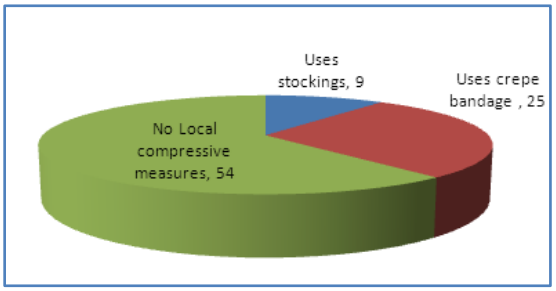

Fig. 8: Use of Crepe Bandage/ graded compression stockings

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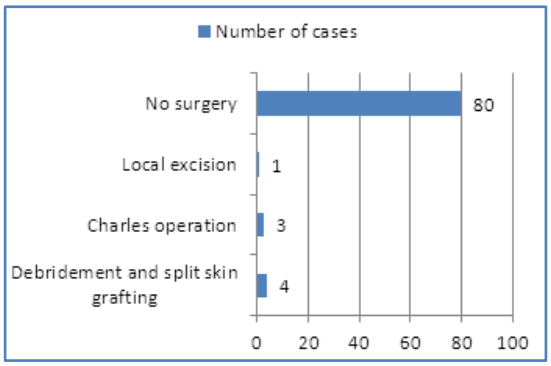

Fig. 9: Surgical management in chronic lymphedema cases

Fig. 10: Lymphoma in chrnic lymphedematous limb

	x2 value and p value			Fishers exact test p value	
Age * Complication	.	.	.	.006	HS
Sex * Complication	1.273	.259			
Affected limb * Complication	.			.283	
Duration(years) * Complication	20.121	.000	HS		
Cause * Complication	4.202	.122			
Mode of onset * Complication	79.954	.000	HS		
Local care * Complication	8.328	.004	HS		
Previous surgery * Complication	23.098	.000	HS		
Awarness regarding surgical options * Complication	26.723	.000	HS		
Regular Crep bandageuse * Complication	22.156	.000	HS		
Limb elevation during sleep * Complication	30.716	.000	HS		
compliance for surgery * Complication	3.044	.081			
pecillin prophylaxis * Complication	.122	.727			

Table 1: Fisher test for association of various factors to complications

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