


STUDY ON THE EFFECTIVENESS OF *KSHARASUTRA* THERAPY ON *BHAGANDARA* (FISTULA- IN- ANO)

Aung Kyaw Min
Associate Professor/ Head
Department of Ulcer and Sore Therapy
University of Traditional Medicine

Introduction


Bhagandara (Fistula-In-Ano, FIA) is a common disease affecting people of all ages and both sexes. It is also more common in the prosperous societies, perhaps related to exercise, diet and etc.

A fistula is a tubular structure which connects two epithelialised surfaces or one cavity to the surface. It is lined by an unhealthy granulation tissue and chronic fibrous material and open communicates with the large abscess cavity which is fitted with purulent discharge and is drained inadequately but constantly through the narrow tubular passage (Peter, 2008).




FIA was widely treated without surgery employing *Ksharasutra* Therapy (KT) in Ayurvedic practice.

Fortunately, there was an opportunity to attend KT training in Ayurvedic University, India from 1999 December 5 to 2000, March 5 before opening the UTM. At that time, KT has been introduced in Traditional Medicine Teaching Hospital, Mandalay (TMTHM) for the treatment of FIA. The number of FIA cases admitted in TMTHM was 28 male patients and 2 female patients in 2009, 21 male patients and 7 female patients in 2010, and 33 male patients and 9 female patients in 2011 respectively.



Currently, KT is being used for the treatment of FIA in Myanmar Traditional Medical System safely and effectively based on experiences. But there is no scientific study about KT in Myanmar. KT is considered effective and it results in less pain, with rapid wound healing time, and less complication. According to literature, medicinal plants used in KT also have well wound healing activity, anti inflammatory activity and antibacterial activity. It is hoped that this technique has an advantage for the management of FIA in TMTHM.




In addition to there were many traditional agents used for the management of FIA as ingestion, application, canterization, washing, cleaning, traditionally and Myanmar KT, a famous technique used in the management of FIA in India, was studied clinically and scientifically for the health benefits of Myanmar people. Thus, this evidenced and useful information in the management of FIA patients would be gained from this study.

Objectives

General objective

- To study the effectiveness of Kshara sutra Therapy on FIA



Specific objectives

- To investigate the effective rate of *Ksharasutra* Therapy on FIA.
- To compare the required number of applications *Ksharasutra* Therapy in different types of FIA.
- To determine the improvement of signs and symptoms related to FIA treated with *Ksharasutra* Therapy.
- To correlate between treatment outcomes and demographic characteristics of the patients.

Materials and Methods

- 25 patients were studied by using hospital based clinical trial design at Ulcer and Sore Ward, Traditional Medicine Teaching Hospital, Mandalay in December 2011 to November 2012.

➤ Selection Criteria

Patients in perfect accord with inclusion criteria were studied.

Inclusion Criteria

1. Age 15-75 years
2. Both sexes.
3. Patient's agreement to be treated with KT under the supervision.

Exclusion Criteria

1. Pregnant women.
2. HIV positive patients

Materials

Preparation of *Ksharasutra*



Figure 1. Habit of *Euphorbia antiquorum*

Figure 2. Collection of latex from the *Euphorbia antiquorum* L. by slitting



Figure 3. Collection of the latex of *Euphorbia antiquorum* L.

Figure 4. Habit of
Achyranthus aspera L.



Figure 5. Desiccation of
Achyranthus aspera L.

Figure 6. Burning- up of the whole plant of *Achyranthus aspera* L.



Figure 7. Ashes of *Achyranthus aspera* L.

Figure 8. Dissolving the ashes in water

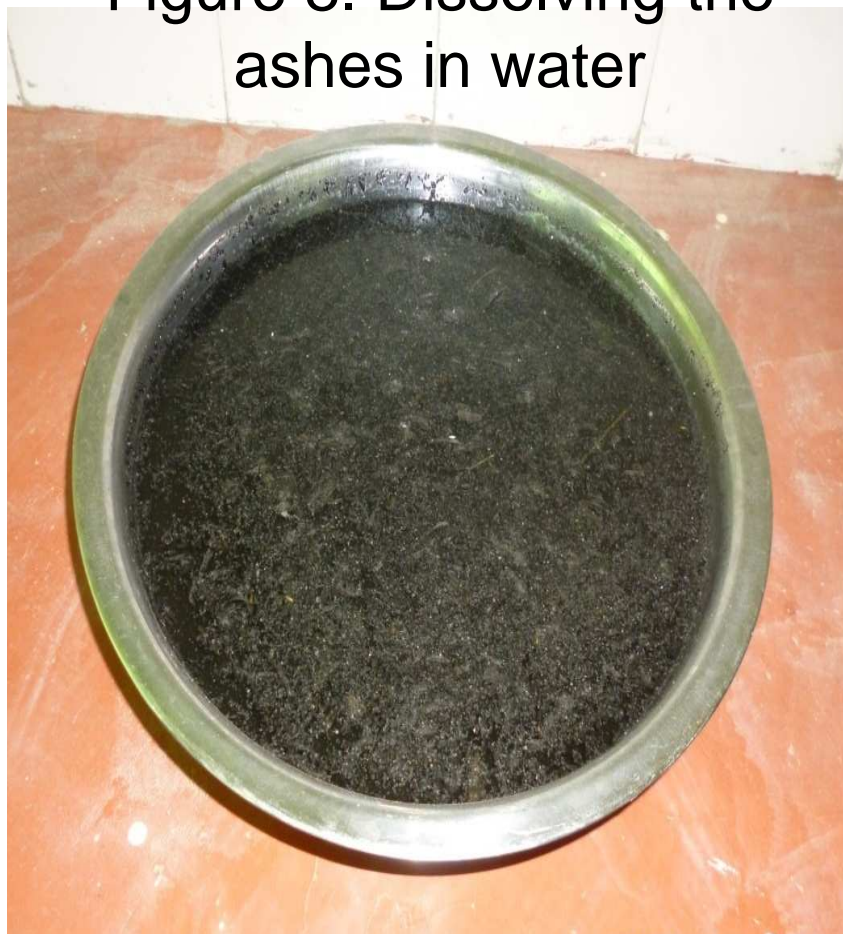


Figure 9. Decantation and filtration of *Achyranthus aspera* L. solution

Figure 10. Boiling the solution of Ash



Figure 11. *Achyranthus aspera* L. salts



Figure 12. Habit of *Curcuma Longa* L

Figure 13. Rhizome of
Curcuma Longa L.



Figure 14. Powder of dried
rhizome of *Curcuma longa* L.

Figure 15. Thread used for preparing Kshara sutra

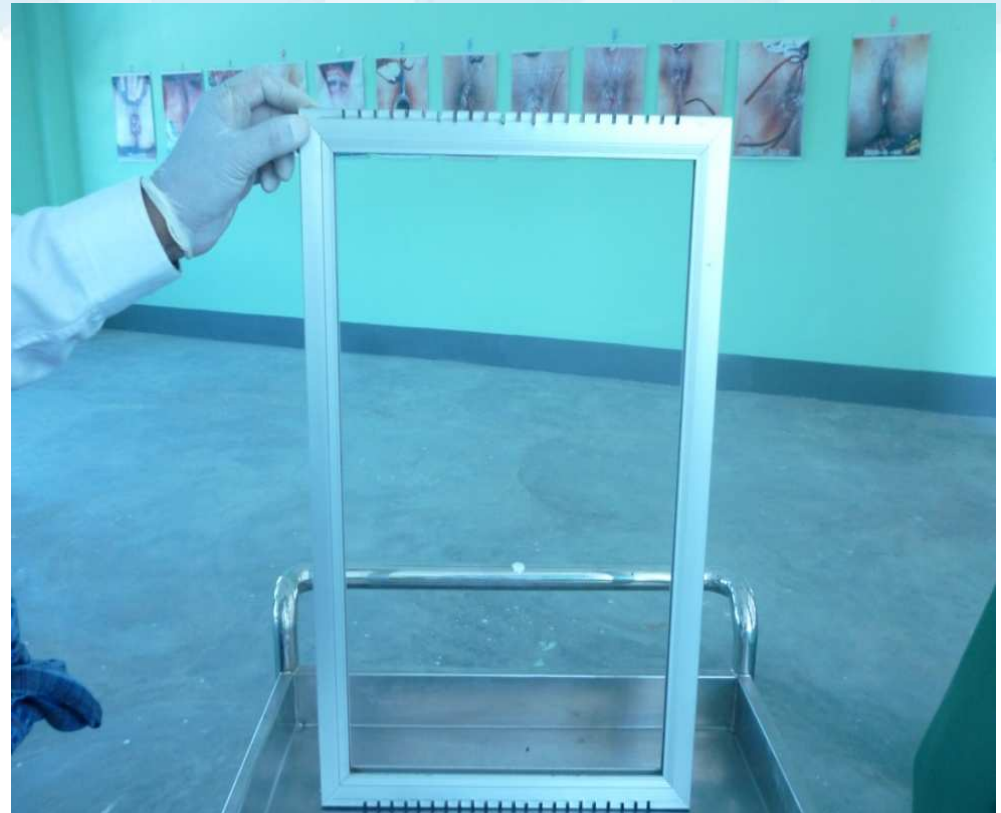
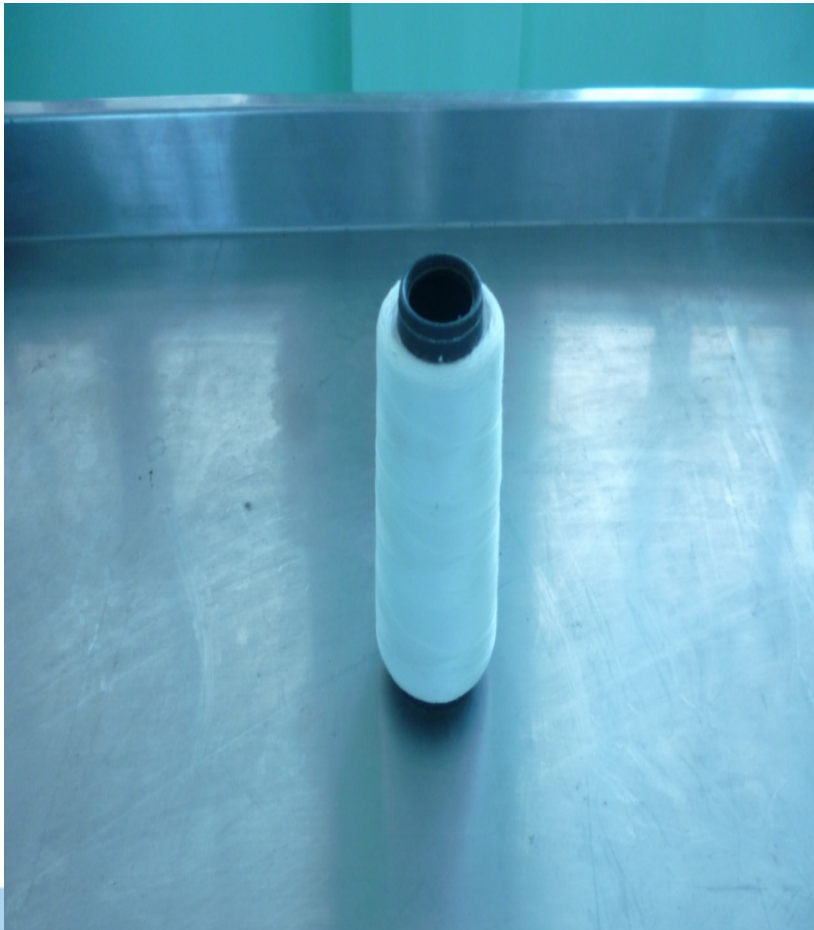


Figure 16. Frame

Figure 17. Tying the thread on the frame



Figure 18. Coating the thread with latex of *Euphorbi antiquorum* L.

Figure 19. Coating the thread
with *Achyranthus aspera* L.
salts

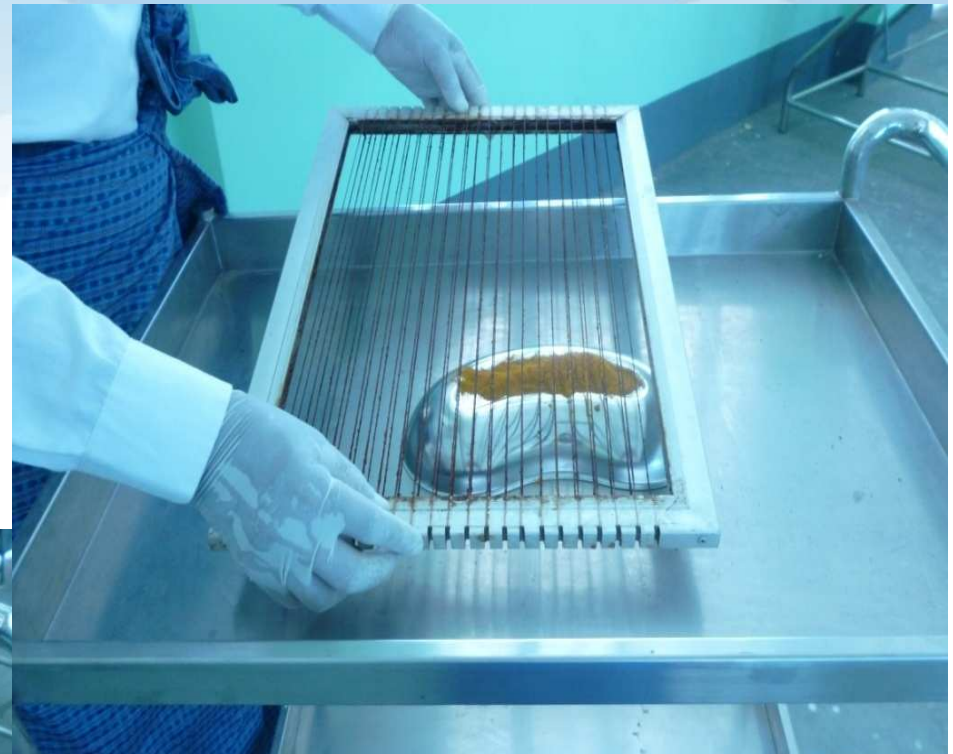
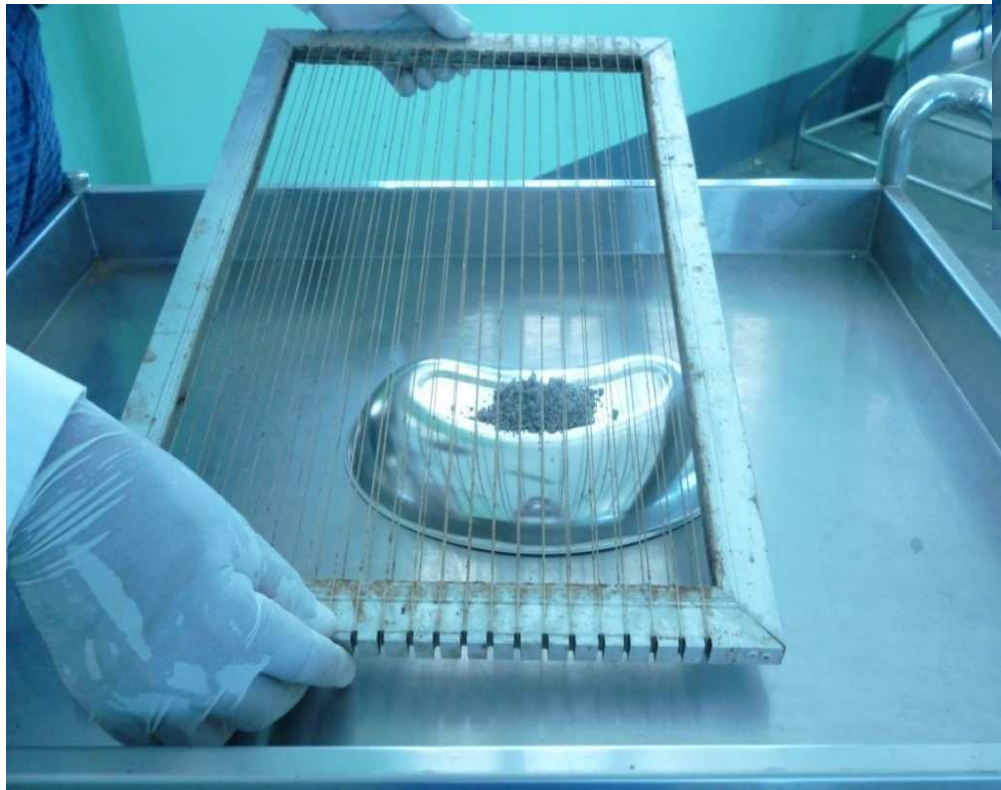


Figure 20. Coating the
thread with Powder of
Curcuma longa L.

Figure 21. Cabinet for
Ksaharasutra



Figure 22. Kaharasutra thread
drying cabinet

Method

Examination Procedure

- General Examination
- Local Examination
- Digital Examination



Investigations

- Retro Test (Determine, ELISA)
- Blood Sugar Level (RBS)
- ESR
- Blood CP

Application of *Ksharasutra*

Figure 23. Step 1 (a) The beginning of putting probe



Figure 24.
Step 1(b) Passing probe

Figure 25. Step 1(c)
Passing probe through
FIA



Figure 26. Step 1(d)
After passing probe
through FIA

Figure 27. Step 2(a)
The beginning of passing
Kshara sutra thread the hole of
probe

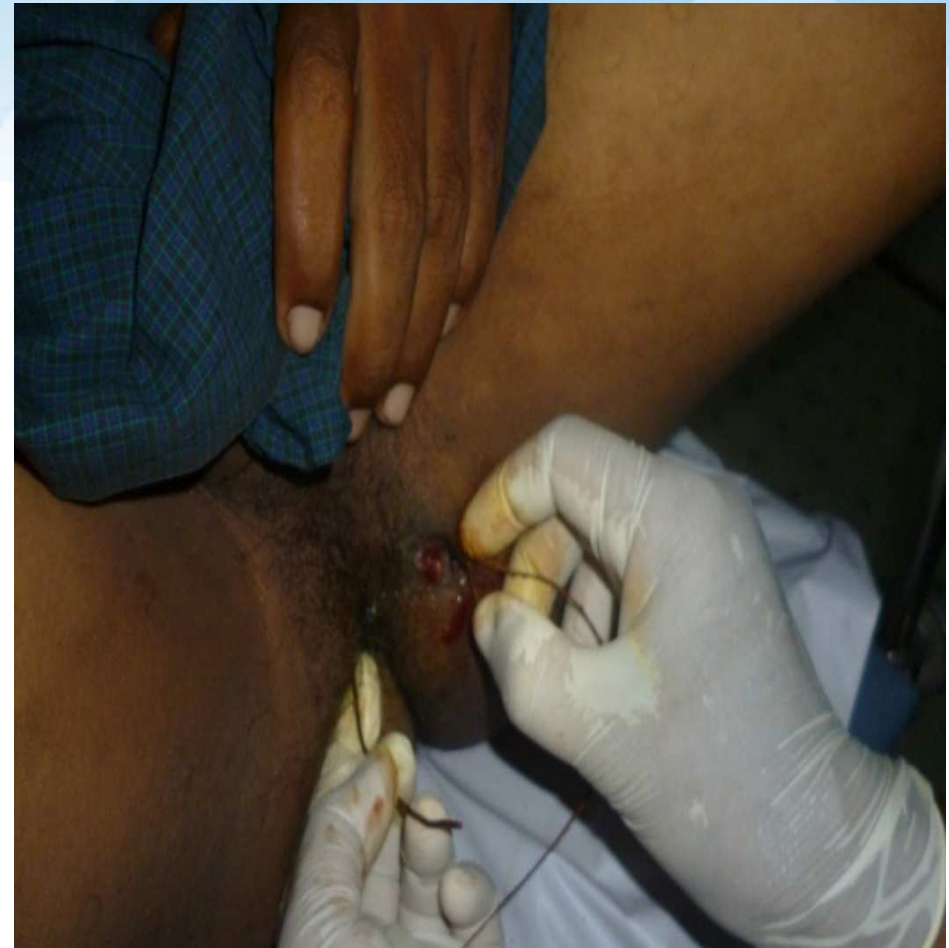


Figure 28. Step 2(b)
Pulling out the **probe** with
Kshara sutra thread



Figure 29. Step 2(c)
Condition of ready to tie Kshara sutra thread

Figure30. Step 3(a)
The beginning of tying
Kshara sutra thread



Figure31. Step 3(b)
Tying Kshara sutra thread

Figure32. Step 3(c)
Cutting Kshara sutra thread



Figure33. Step 3(d)
After application of
Kshara sutra therapy on FIA.



Data Collection and Data Analysis

Data were collected by using observations and investigations stated in a proforma. The data were analysed by using paired “ t” test in version 16. The result was shown by using frequency distribution tables, suitable diagrams, bar chart and histograms.



Ethical Consideration

Written informed consent was obtained from the patient or caregiver after thorough explanation about the study. Patients who participate in this study were volunteers and were entitled to withdraw from the study at any time. There was neither charge nor incentive for the participants. The results of this study were used for research purpose only and kept confidential.

Findings and Discussions

Figure34. Age and Sex distribution of patients with FIA

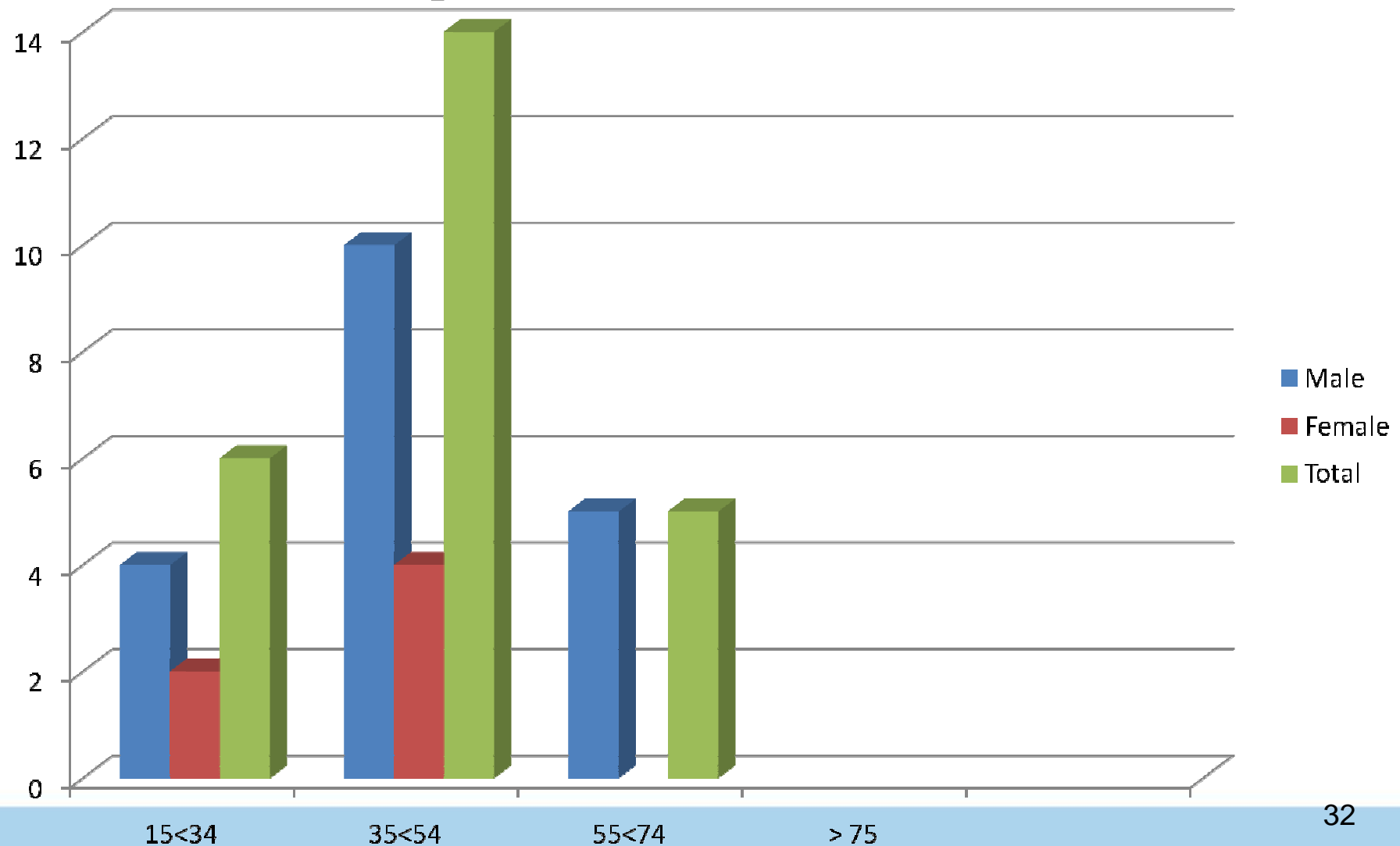


Figure35. Marital status of patients in different age, Sex group.

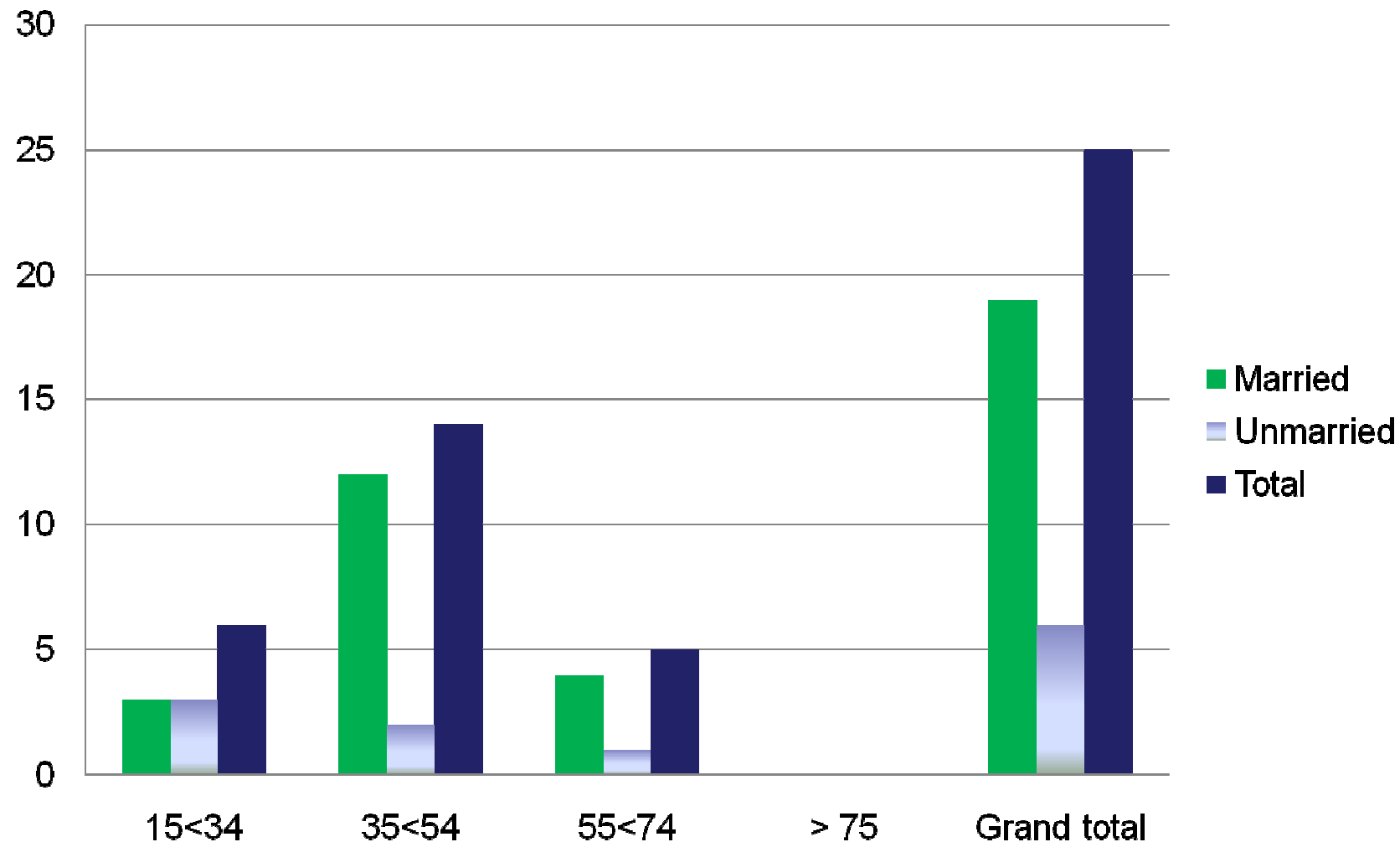


Figure36. Distribution of Anatomical location of FIA in different age,sex groups

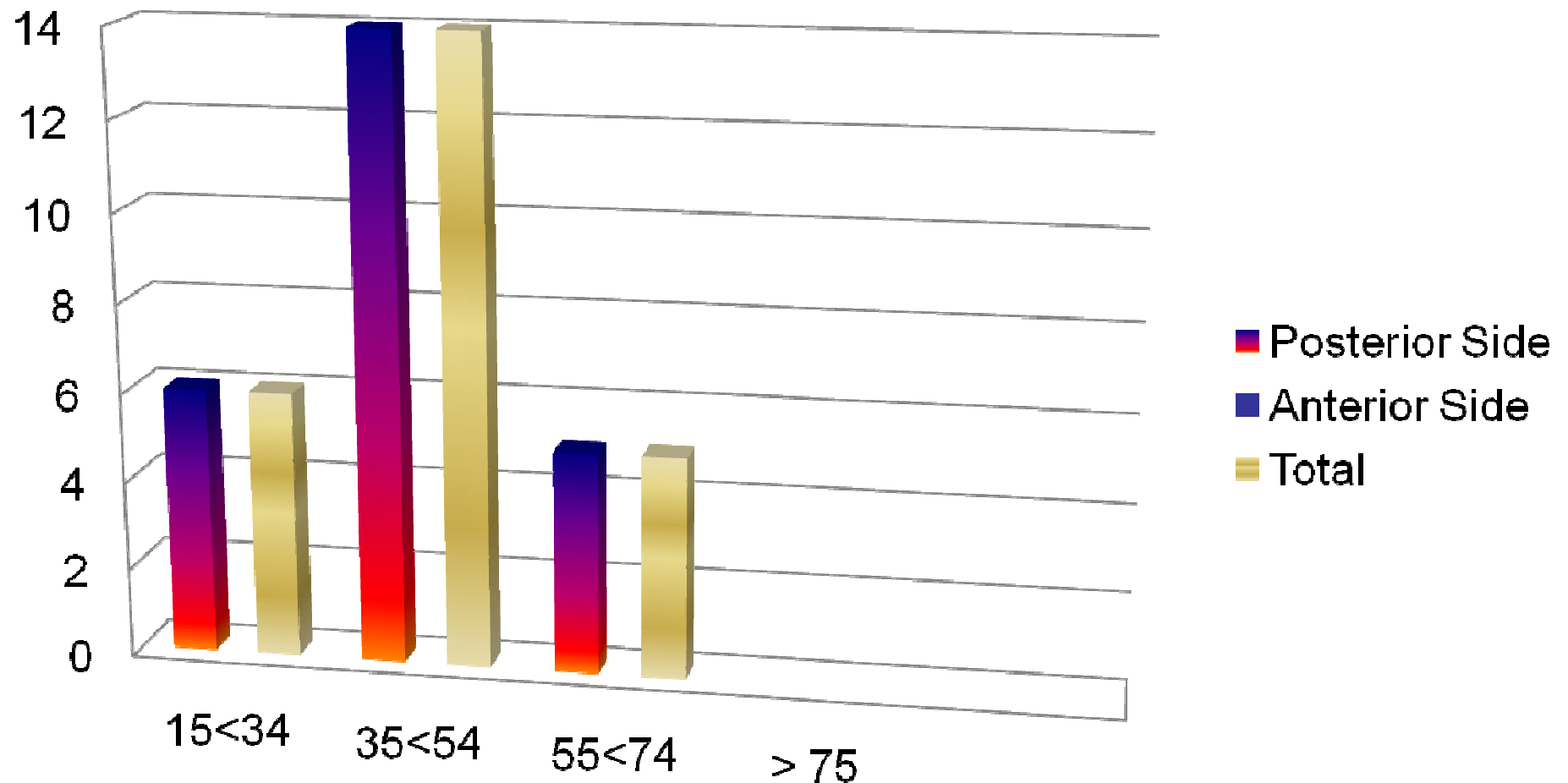


Figure37. Distribution of Anatomical location of FIA in different age, sex groups

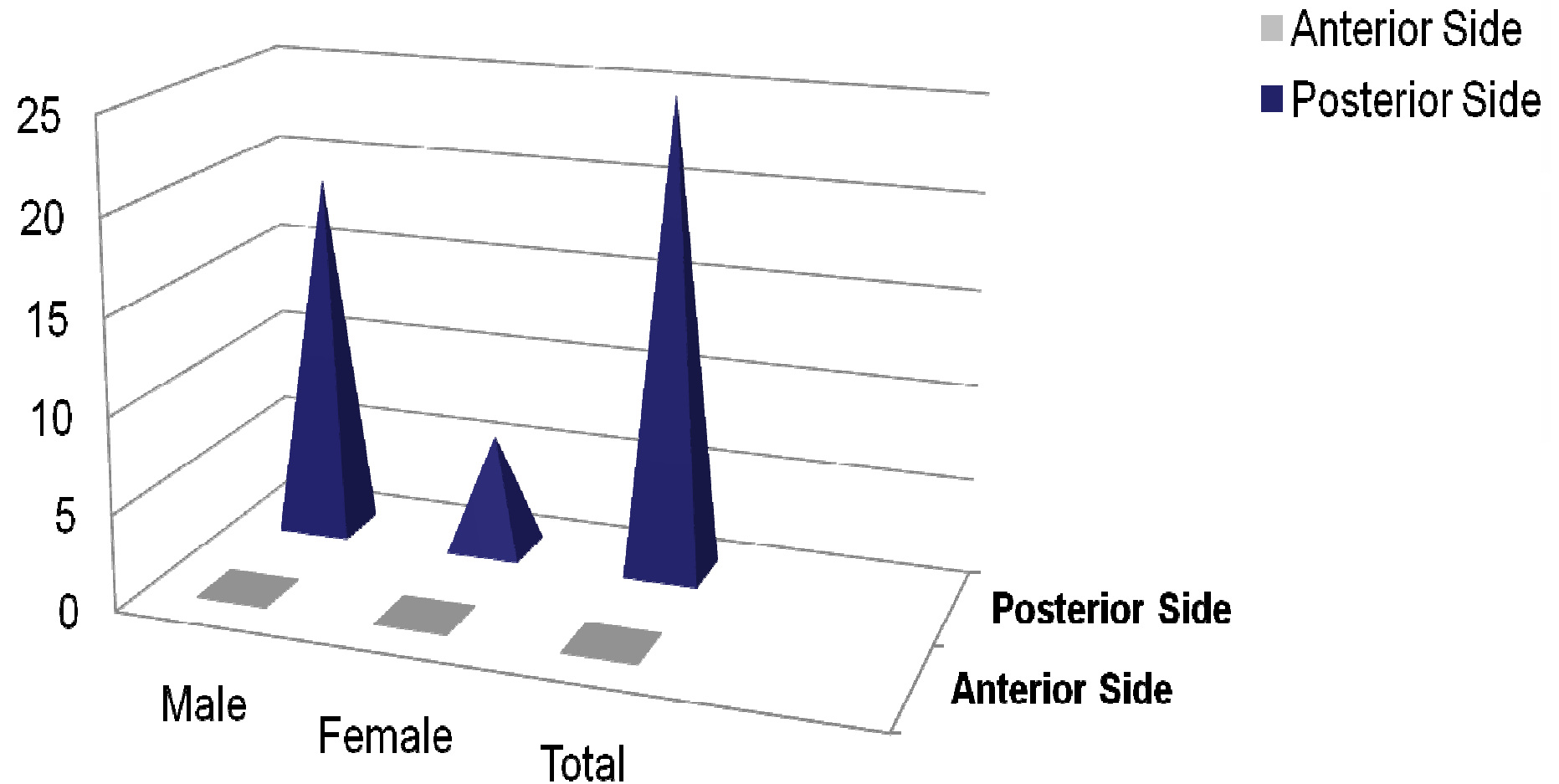


Figure38. Findings in accordance with Age and Sex of Posterior side distribution

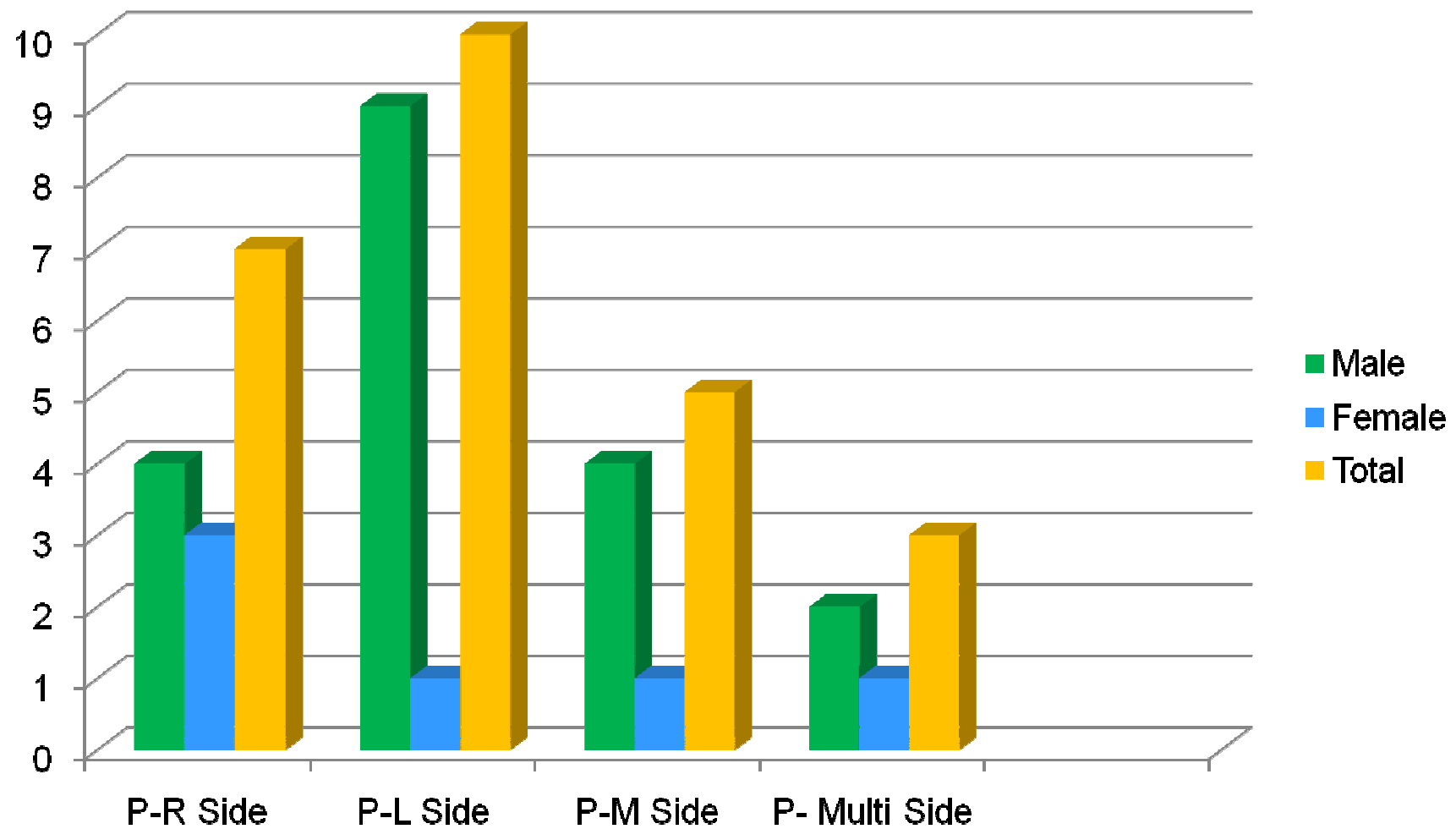


Figure 39. Incidence of distribution in o'clock position

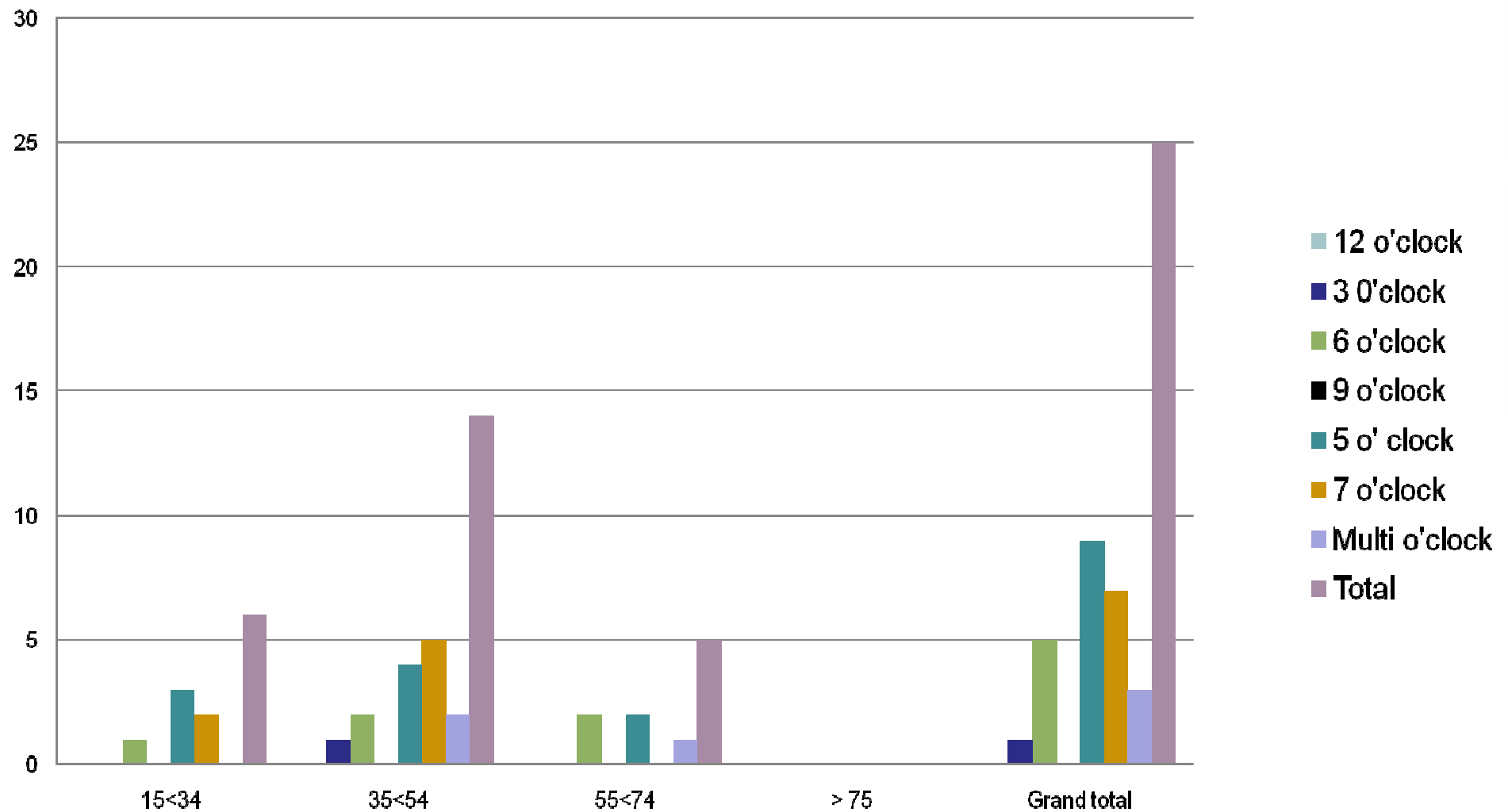


Figure 40. Incidence of distribution in o'clock position

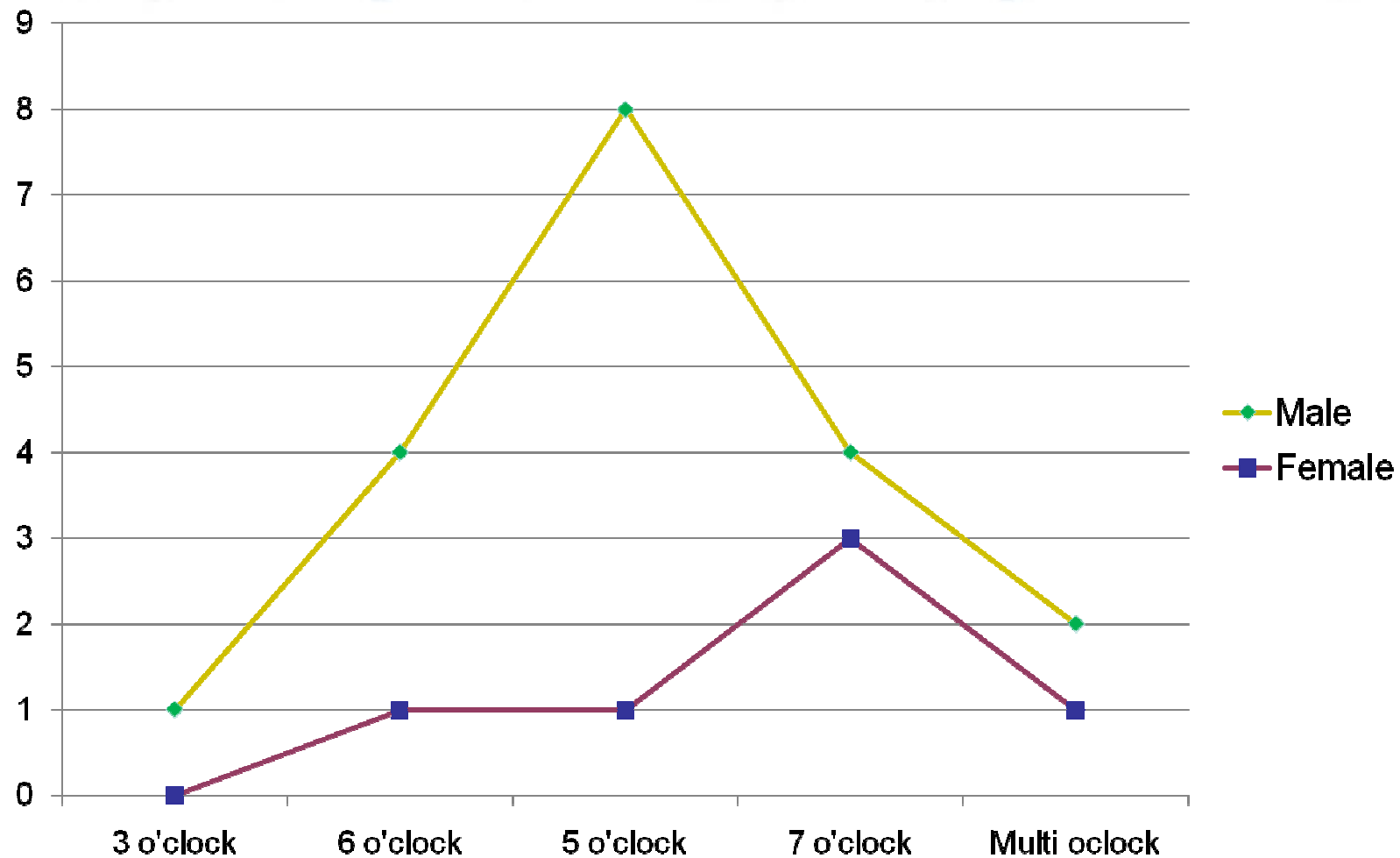


Figure41. The outcome of KT Treatment on FIA patient

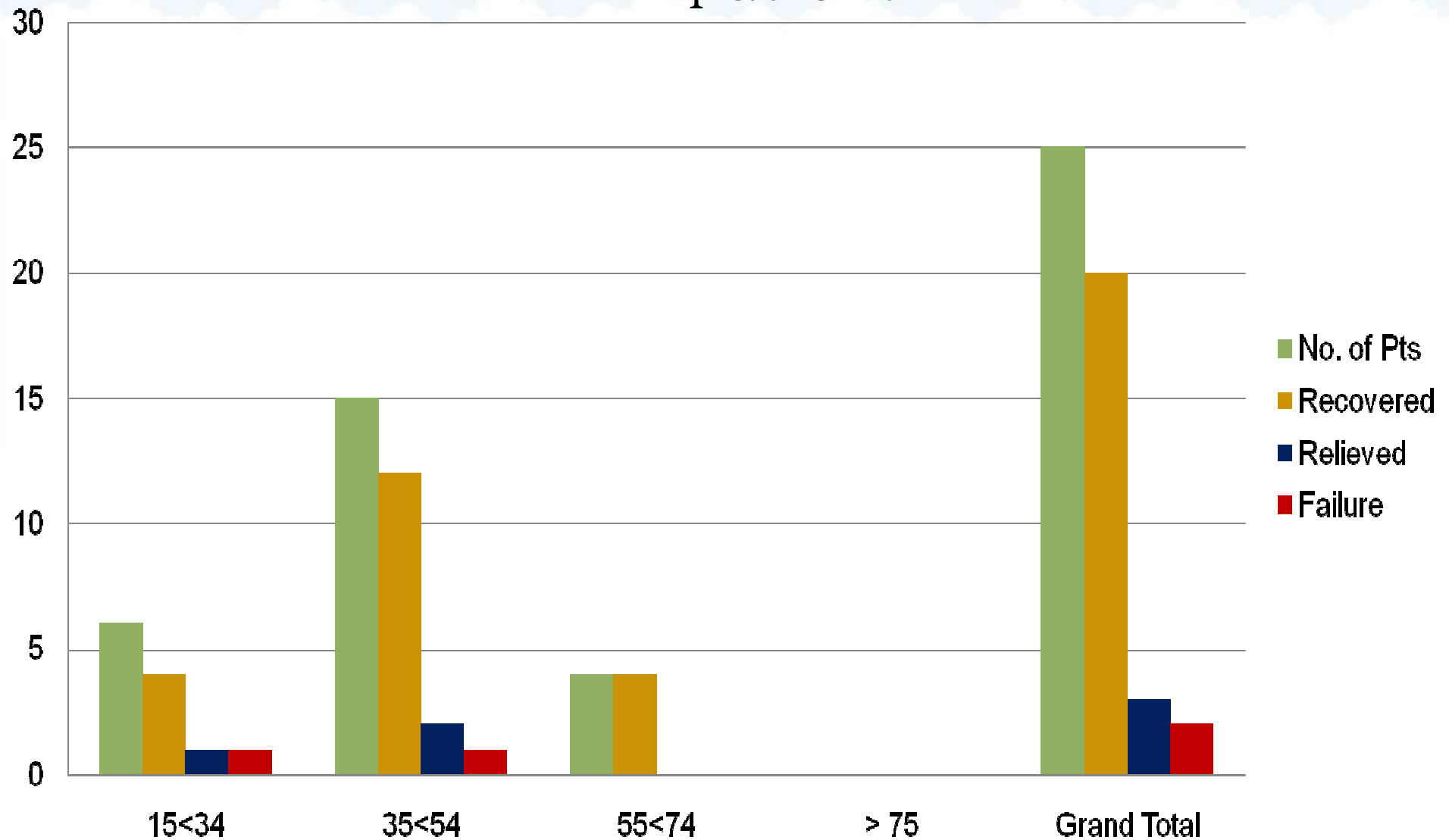


Table1.The effectiveness of KT Treatment on FIA in different age group

Age group	Total	Recovered		Relieved		Failure	
		Frequency	%	Frequency	%	Frequency	%
15 < 34	6	4	16	1	4	1	4
35 < 54	15	12	48	2	8	1	4
55 < 74	4	4	16	-	-	-	-
> 75	-	-	-	-	-	-	-
	25	20	80	3	12	2 ⁴⁰	8

Table 2. The effectiveness of KT Treatment on FIA in threat condition

	Duration mean wks	
	$> 2\text{cm}$	$\leq 2\text{cm}$
Recovered	11.62	5.76
Relieved	10	-

Table3. Number of application at KT

	Number of Application	
	$> 2\text{cm}$	$\leq 2\text{cm}$
Recovered	12	6
Relieved	10	-

Table4. Comparison of the effect of KT on FIA (PL side) in before and after Treatment

	Paired differences					t	Df	p
	Mean	SD	SE	Mean Score				
				Before	After			
Pair 2 before week 1	.4000	.2108	.0667	3.700	3.300	6	9	.000
Pair 2 before week 2	.6500	.2415	.0764	3.700	3.050	8.510	9	.000
Pair 2 before week 3	1.0700	.2452	.0775	3.700	2.630	13.801	9	.000
Pair 2 before week 4	1.2800	.3425	.1083	3.700	2.420	11.817	9	.000
Pair 2 before week 5	1.6700	.2983	.0943	3.700	2.030	17.702	9	.000

The p value is < 0.001. So, there was statistically significance before and after on FIA with KT.

Table5. Comparison of the effect of KT on FIA (PR side) in before and after Treatment


	Paired differences					t	Df	p
	Mean	SD	SE	Mean Score				
				Before	After			
Pair 2 before week 1	.4000	.2582	.0976	2.900	2.500	4.099	6	.006
Pair 2 before week 2	.8000	.1732	.0655	2.900	2.100	12.220	6	.000
Pair 2 before week 3	1.1857	.1952	.0738	2.900	1.714	16.073	6	.000
Pair 2 before week 4	1.4000	.3873	.1464	2.900	1.5000	9.564	6	.000
Pair 2 before week 5	1.6857	.1952	.0738	2.900	1.214	22.851	6	.000

The p value is < 0.005. So, there was statistically significance before and 1 week after on FIA with KT.

Discussion


This is a hospital based clinical trail to study the effect of KT on the total 25 patients with FIA. This study was done in Tradition Medicine Teaching Hospital, Mandalay from December 2011 to November 2012.

In all study population, 19 patients were male (76%) and 6 patients were female (24%) during study periods. So, the prevalence rate of FIA in male was more than female in this study. But, both male and female in this study were between 35 and 54 age group.




In this study, married patients were 76% of total patients. FIA is more common in married than unmarried patients. So, FIA is the incidence in couple than single according to in the result of this study.


According to the Traditional Medicine, it's is reported that excessive sexual contact is one of the most causes of FIA in traditional medicine system. In the present study, the married patients are more than unmarried patients. So the cause of FIA due to excessive sexual contact is agree with traditional medicine system.




Regarding the distribution of position of FIA, the position distribution, all patients participated in this study were caused in posterior site and no in anterior position. It is suggest that the most position in FIA was found in posterior position than anterior position. Among 25 cases with FIA that 40% of posterior left side, 28% of posterior right side, 20% of posterior middle side and 12% of posterior multiple side were found in this study. It is found that posterior left side was more in common than other position during this study.




And then, in the o'clock position, FIA could cause different position except 9 o'clock and 12 o'clock position. But the majority of case with FIA was found in 5 and 7 o'clock position in this study. Five, six and seven o'clock position are the junction of ilium and iliac crest according to the nature of anatomy. The more the pressure, the more the injury can get in this position. So, the major position with FIA is related to the nature of anatomy.



Besides, in traditional medicine system, over sitting in no vacuum is one of the cause of FIA. So, the most positions with FIA in this study agree with the cause of FIA described in traditional medicine system.




During study period, all male patients with FIA in this study were occurred in posterior left side and all female were in posterior right side. It is hypothesised that the diseases can be caused in right side of female and left side of male in traditional medicine system. Thus, the incidence position of FIA agrees with this hypothesis.




In according to the diagnosis of 8 kinds of diseases noted in Myanmar Traditional medicine system, diseases caused by Uhna are found in the left side of male and the right side of female, and diseases caused by Sita are found in the right side of male and the left side of female.


FIA was occurred in the left side of male and the right side of female during this study. So, it is noted that FIA can caused by Uhna.




In thread condition which is the measurement of length of KT thread, 76% of total patients was recovered equal and less than 2cm of the length of thread and 16% was relieved in more than 2cm length of thread condition. The duration of KT on FIA was taken for average from 11 weeks to 12 weeks in < 2cm of the length of thread and average from 5 to 6 weeks in above 2cm thread condition. Thus, the patients with FIA should be cured as early and patiently as possible.




In literature, KT is the most famous treatment to cure FIA in India. It is reported that medicinal plants used in KT method has antimicrobial activity, antipyretic activity and analgesic properties in the literature. These medicinal plants are easily available in Myanmar. So, the KT method is cost effectiveness in the management of FIA.



The tabsule putting method has been used in the management of FIA by Myanmar Traditional Medicine. This method is effective for the treatment of sinus but no on FIA. Some patients with FIA after operation by western medicine system were admitted in MTMTH. The rest of scar and deformity of anus were observed in these patients. However, the rest of scar and deformity of anus were not found in the patients after KT treatment.



By tying the Ksharasutra method outside the anus, it is gradually pulled into outside by the gravity. Moreover, as the thread is foreign body, the body does not accept it. That's why, FIA track is gradually becoming granulation tissue. For example, the rope was placed and pulled out on the surface of the iceberg. So, it is suggested that this KT method agrees with scientific method.



As a result, the effective of KT on FIA patients was 92% of total cases in this study. According to paired t test, t value was increasing in the end of study period and p value was 0.000. So, there was statistically significance in the effect of KT on FIA patients.

Suggestion

It is suggested that the effectiveness of KT in the management of FIA patients according to this study because there is no side effect and more cost effective as well as easily available ingredients are used in KT method.

The present study was conducted not only limited sample size but also for short term study. Therefore, further study on the effect of KT on FIA should be carried out on large sample size for a long time in multicentres.


It was found that medicinal plants used in KT method have wound healing activity, analgesic activity and antibacterial activity-in literature. So, these medicinal plants should be investigated on these activities.

Used in this study KT method is a famous and popular technique for the treatment of FIA in India because it was evidenced that in less pain, with rapid wound healing time and less complication and then the results obtained from this study were effective in the management of FIA. So, KT method should be adopted in the management of FIA in Myanmar Traditional .

The use of this method should be used and encouraged widely in Myanmar Traditional Medical System for the treatment of FIA.

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References

- Akihisa T. et. al (2002). Eupha-7,9(11),24-trien-3beta-ol ("antiquol C") and other triterpenes from *Euphorbia antiquorum* latex and their inhibitory effects on Epstein-Barr virus activation.[internet]. J Nat Prod. 2002 Mar 8, 65(2):158-62. <http://www.scholarsresearchlibrary.com/archive.html>. [2012 Jun 28].
- Chakraborty A, (2002). Cancer chemopreventive activity of *Achyranthes aspera* leaves on Epstein-Barr virus activation and two-stage mouse skin carcinogenesis[internet]. Canc Lett. 2002 Mar 8. 177(1).PubMed 11809524 [cited 2012 Jun 28].
- Curriculum committee.(2004) Institute of traditional medicine. Ministry of traditional medicine.
- Divaker Rao T., Pragmatic view on Ksharsutra Therapy in the management of fistula-in-ano. Sushruta (CGHS) Ayurvedic Hospital. Lodhi Road, New Delhi-110003

- Herbal Medicine research centre Institute for Medical Research.(2002).Compendium of Medicinal Plants used in Malaysia, Vol I. Kuala Lumpur, Malaysia. Pg 232,332.
- Hla Tin,Shari. (1964). *Madava Nidaba*. Yadanawardi pittacart Book store.Yangon. Myanmar. (Myanmar Language). Vol II. Pg 351-358.
- Peter J. Lunniss. (2008). The anus and the anal canal. Chapter 68. *Bailey & Love's, Short Practice of Surgery*. Edited by Norman S. Williams MS. Christopher J.K.Bulstrode MCh,P. Ronan O' Connell. 25th Edition. Vol. 3. 2008 Edward Arnold Ltd. Saffron House, 6–10 Kirby Street, London EC1N 8TS. Pg 1262-1264.
- Ravindran P. N. (Editor), K. Nirmal Babu (Editor), K. Sivaraman (Editor).(2007). Turmeric. The genus *Curcuma* (Medicinal and Aromatic Plants - Industrial Profiles). Publisher: CRC. 1stedition.

- Saurabh S., Pradeep S., Garima M., K. Jha¹, (2011). *Achyranthes aspera*-An important medicinal plant. *Teerthankar Mahaveer College of Pharmacy, Teerthankar Mahaveer University, Bagarpur, Moradabad, India*. Scholars Research Library. *J. Nat. Prod. Plant Resour.*, 2011, 1 (1): 1-14. <http://www.scholarsresearchlibrary.com/archive.html>. [2012 Feb 2]
- Sharma. P.V. (2000). *Susruta-Samhita*. With English translation of text and Dalhana's commentary along with clinical notes. *Nidana Sarira and Dikitsathana*. Priya Vrat Sharama, Editors. Vol. II.
- Sharma S.K., Sharma K.R., Kulwant Singh, editors. (1995) . *Ksharasutra Therapy in Fistula-In - Ano and other Ano- Rectal disorders*. Rashtriya Ayurved Vidyapeeth, National Academy of Ayurveda. An autonomous Body under the Ministry of health & F.W. Govt.of India, New Delhi. 48,109-111.

- Sumathi S., *et. al* (2011). Cytotoxic studies of latex of *Euphorbia antiquorum* in *in vitro* models. Department of Biochemistry, Biotechnology and Bioinformatics, Avinashilingam Deemed University for Women Coimbatore, Tamilnadu, India. 2011 March 30. <http://www.academicjournals.org>. [2012 Jun 28]
- Trease and Evans (2002), Pharmacognosy, 5th Edition. W.B. Saunders Edinburgh London, New York Philadelphia St Louis Sydney Tirinto. Pg 280,418.
- World Health Organization. (1999). Geneva. WHO monographs on Selected Medicinal Plants. Vol I. Pg 119-121.



THANK YOU