

# Hallux Metatarsophalangeal Joint Survey related to Postoperative Surgery Analysis

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*This paper has been re-typed for electronic download and has not been re-Peer Reviewed. In 2015 the author DT however reviewed the concept of classification and undertook an internal critique with the outcome of producing three publications following an MSC Thesis on the subject of observation. The thesis and publications can be found on the author's website [Consultingfootpain.co.uk](http://Consultingfootpain.co.uk)*

## Abstract

The common pathological occurrence of hallux deformity has not been reviewed recently by state registered chiropodists in survey form. The authors present facts gathered from an initial analysis of 1700 patients. Hallux abductus and abduct valgus were viewed separately and a wide age range supported the evidence.

Patients who had undergone surgery to the first metatarsophalangeal joint were analysed to consider the level of success and the effects of surgery after many years. It is the chiropodist who has more exposure to post-surgery results in this field than any other practitioner. The availability of patients in the College lends itself well to study. One of the authors, a part-time teacher, recognised how little basic research was undertaken to supplement theory in class. The survey thus developed clear objectives from the outset – to involve staff and students in a way that would introduce them to basic concepts of survey technique. This provided valuable because it extended the teaching programme without creating much extra work load.

The authors feel that students should participate in research to familiarise themselves with gathering useful statistics. The area chosen was simple in that the students of the second and third years had to identify hallux valgus and Hallux abducto-valgus deformity during their routine clinics. Patients who had had surgery carried out to the first metatarsophalangeal joint were identified and analysed.

## Discussion

Patients were recorded by file number, age and sex. Assessment of the deformity had to be carried out with the patient standing. Where the hallux was considered to deviate from the median sagittal plane by more than 15 degrees was recorded positively. While a restriction on deformity kept to the areas of hallux abductus and hallux abducto-valgus. Other deformity was recorded in a separate column on survey sheets produced for each student. Other hallux anomalies, including hallux rigidus, hallux adductus etc. The authors introduced lesion (hyperkeratotic types) classification into the survey as this has been poorly viewed with deformity of the first metatarsophalangeal joint.

Surgery was assessed by two methods: the patient answered questions subjectively considering the merits of surgery, while the students assessed the surgery objectively by examination.

### Questionnaires used in this study:

#### **Patient (1)**

Was the patient satisfied? (their idea of success or failure)

- Yes
- No
- Uncertain

Was there an improvement in walking?

- Improved
- Deteriorated

## (Examination) student (2)

Has the deformity returned?  
(our idea of success or failure)

Was there a lesion under the 2<sup>nd</sup> metatarsal head?  
a) before  
b) after

Was there any post-operative infection

For the purposes of this survey and ease of communication, lesions were classified:

### Lesion classification

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0	=	no lesion
1	=	no specific callosity but diffuse or pinch (striated) callosity
2	=	circumscribed or well defined thickening (see Figure 1)
3	=	Heloma type, durum or milliare without peripheral callosity
4	=	callosity of well-defined nature with well defined heloma lesion

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The data was recorded onto sheets columnated for the purpose of rapid marking by crosses, ticks and lesion classification. The data was fed into a computer because of the advantage of programming a series of simple questions. However, before the data could be introduced a programme was constructed for the purpose. This and the typing in of data constituted most man hours.

### Results

From 1700 patients identified, 2000 feet were recorded on computer. The survey represents 70% females and 30% males, 6% were aged under 20 years while 2% were under 10 years.

Table 1. Incidence of hallucal deformity

Abductus	Abduct valgus	Other	Age Group
10%	0%	—	under 10
20%	4%	—	under 20
25%	6%	17%	11-20
33%	29%	14%	>20

Table 2. Sex Distribution

Female			Male			Age Group
Abductus	Abduct valgus	Other	Abductus	Abduct valgus	Other	
30%	70%	—	0%	0%	—	10-20
35%	32%	11%	25%	12%	—	All

The next section deals with the identification and incidence of hyperkeratotic lesion presence | association with hallux deformity:

**Table 3 A. Deformity presence but no lesions**

Abductus	5.6%
Abduct valgus	3.1%

**Table 3 B. Lesion under second metatarsals head on survey**

Total survey	49%
Female	58%
Male	33%

% over 20 years of age, both males and female, who had a second plantar metatarsal head lesion = 51%

**Table 3C Incidence of lesion classification 1 under the first metatarsal head**

	Abductus	Abduct valgus
Female	34%	40.6%
Male	21%	21.9%
Total survey	31%	38%

**Table 4. Lesion classification incidence of appearance in the survey**

1	2	3	4	Grouping
59%	35%	6%	6%	females (all)
40%	29%	8%	12%	males (all)
53%	33%	6%	7%	all
7%	0%	7%	0%	<10
24%	10%	2.5%	1.6%	<20

**Table 5 Incidence of second metatarsal head lesion with hallux deformity**

Abductus	19%
Abduct valgus	16.4%

## Conclusion

The fact that increased incidence of deformity occurs with age is self-evident from the results. The authors were concerned about the small proportion of people under 10 seen, from the view of health education.

A high number of patients presenting to the clinic demonstrate HA, HAV or other hallucal deformity. The sex ratio between males and females was as expected, with females having the deformities much more frequently. Men are less likely to develop hallucal deformity from these results.

We identified the fact that there was only a small number of first metatarsal deformities without lesions. The pattern suggested that some types of lesion was much more likely to be evident. We drew attention

to both first and second metatarsal head lesion presence and concluded that second metatarsal head development was common, but not necessarily where a hallucal deformity existed. This was surprising as it appeared (*that*) other metatarsal heads were equally subjected to overload.

The first metatarsals head distribution seemed to indicate that with HAV callosity was more likely, and that with such deformities build-up was not as common as one would expect. The authors feel that the sheer incompetency of the mechanism allows shifting to one or more of the other metatarsal heads. HAV deformity in females did, however, show a common occurrence of a class 1 hyperkeratotic lesion.

Lesion classification confirmed the frequency and levels of cutaneous hyperkeratosis. With increase in age naturally the frequency of lesion presence is likely. Women appear to have more simple classification than men, viz classes 1 and 2, while men showed classes 3 and 4 more often. The undertones of this might well indicate that women attend for chiropody treatment for fewer pathological cutaneous changes than do the male section of the populace. As women appear to be more aware of chiropodial services, we suggest this, too, is why there is a higher number of women in the survey. The men who present for treatment are on the whole more in need of treatment per head studied.

## Surgery – A postoperative analysis

### Discussion

Two features must be clearly understood when we think of assessing surgery:

- 1.the patient had his or her own view of how successful a procedure has been. If an unsightly deformity was present and is no longer evident, the procedure is most likely deemed successful. If the patient can walk better and wear a greater variety of shoes then this, too, may be considered successful from the patient's view;
- 2.the clinical chiropodist views the points in 1. As subjective and minor in relevance. Recurrence of deformity and lesion-increase tends to indicate between success and failure.

The authors present both views in the results so that readers will not be given a biased presentation of the facts.

### Results

Out of the survey: 7% females had had surgery, 1.7% males had had surgery, and 1.6% under 20 had had surgery.

**Table 6. Assessment of postoperative surgery success**

Patient assessment	female	male	total
% satisfied	71%	90%	73%
improved their walking	59%	50%	—
how many were worse	15%	0%	—
how many were uncertain / could not answer	26%	50%	—
Clinical assessment	female	male	total
What % deformity returned	54%	60%	54%
What % had post-op infection	7%	0%	—
How many had second met. head			
Lesion after but not before	36%	50%	—
% had second met.head lesion before and after	63%	70%	—
% had a second met. head lesion before surgery	33%	50%	—

### **Origin of referral**

GP orientated	62%
Diverse consultants	34%
Chiroprapist	4%

### Conclusions

The number of patients satisfied was high on a yes: no basis. The more definitive questions such as walking improvement reduced the number dramatically to just over half recording more success than failure. No men found they were worse off, but 15% of women were clearly concerned that they were no better.