AN UNUSUAL MALPOSITION OF 4th TOE OVERLAPPING ON 5th TOE.

Dr Arun Kumar.S.Bilodi¹, Dr.M.R.Gangadhar²

¹Professor and Head, Department of Anatomy, Velammal Medical College Hospital & Research Institute (VMCH & RI), Velammal Village, Anuppanadi, Madurai -625009, TAMIL NADU.

²Professor of Anthropology, Department of Anthropology, Manasagangothri., University of Mysore, MYSORE-570006, KARNATAKA.

ABSTRACT

Aim :- The objective of present study is report a unusual case of malposition and overlapping of fourth toe on the fifth toe. Both the toes were shorter than other medial three toes. Place and period :- This case was studied in the month of March 2009 at Bangalore. Case Report :- A female 19 years old came to outpatient of hospital with pain in right foot. On examination, she had malpositioning as well as overlapping of 4th toe over the 5th toe. So she had difficulty in walking, tendency to fall sideways and even to run to catch the bus. There was alteration in her gait too. Overall, she had great difficulty in carrying out her normal activities and she had gone in for depression as she was more conscious about her deformed and anomalous right foot. She was thoroughly examined for her deformity. Later she underwent surgery and she was corrected. Her post operative period was uneventful. DISCUSSION:- This is deformity of toe where there is overlapping of 4th toe over the 5th toe. This may be due to lack of space or deformed position in the uterine cavity during intra uterine period. This present case has been reviewed, compared and correlated with the available literatures. CONCLUSION:- This knowledge of deformity of fourth toe will be useful to orthopaedic surgeons and orthopaedic surgeon can study the deformity to correct it by surgical line of treatment. Hence it has been studied and reported.

INTRODUCTION
It is one common anomaly that is seen in the family showing the adduction position of the little toe dorsally resulting in the disability. Here there is there is lateral rotation phalanges of fifth toe associated with contraction of contraction of capsule of the contraction metatarsophalangeal joint. This deformity can be corrected by the Butler’s operation goes after the name R. Weeden Butler of Cambridge. About 70 operations have been performed to correct the dorsally adducted 5th toe 1. These anomalies of the toes have been studied various surgeons. They are Mc Farland (1950)2, Scrase (1954)3, Lapidus (1942)4, Colonna(1950)5, Butlers (1964)6.

This deformity has been studied and operated by many surgeons, namely., Mc Farland (1950)1, Scrase (1954)2, Lapidus (1942)3, Colonna(1950)4, Butlers (1964)5. (Ref 67, 68, 69, 70,71) This is also known as congenital digitus minimus varus or congenital digitus quinti varus. There is overlapping of 5th toe which has primary 3 components. They are adduction in a transverse plane, dorsiflexion in sagital plane and varus rotation in the form of external rotation in a frontal plane. Movements occur at fifth metatarsophalangeal joint. There may be associated contracture of within the fifth toe. Correction of this deformity is by consolidated surgical approach which has given a very good result6.

CASE REPORT
A 19 years old female patient came with history of pain in right lower limb to the outpatient of hospital On examination she had mal positioned of 4th toe dorsally adducted and overlapping of 4th toe on the 5th toe which has given rise to difficulty in walking, and tendency to fall forward and sometimes stamping gait in her right foot. Overall, she had great difficulty in carrying out her normal activities and she had gone in for depression as she was more conscious about her anomalous right foot.

FAMILY HISTORY
She was the second daughter born to her non consanguineous parents. But there was family history of limb anomaly. Her elder sister's daughter aged one year has supernumerary of digits(6 digits ) in her left foot.
ON PHYSICAL EXAMINATION
She is normally built and nourished. There is no cyanosis, jaundice, clubbing, and lymphadenopathy. Her spine was normal. All the fingers with nails were normal. All the toes were normal except her toe i.e., 4th and 5th toes of right foot. There was overlapping of 4th toe over the 5th toe. Both the toes 4th and fifth toes were significantly shorter when compared to medial three toes on the right limb. There was malposition of 4th toe. No other deformity was present and no other anomalies were present in her. She was thoroughly investigated with all laboratory investigations. All results were within the normal limits. Later her deformity was corrected and her post operative period was uneventful.

LOCAL EXAMINATION
Showed wide spacing 1st interdigital cleft in the right lower limb. All the 5 toes were present in the both lower limbs. But on the right side, there was malposition of 4th toe. Both 4th and 5th toes were very much shorter than the other medial three toes. The 4th toes was overlapping on 5th toe, but not on 3rd toe. All the toes were long but not the 4th toe. Skin and nails were normal. There are only two interdigital spaces, namely 1st and 2nd while no 3rd interdigital space which is obscured by the overlapping of 4th toe on the 5th toe. Big toe, second & third toes were much longer than the fourth and fifth toes. 1st interdigital space was much wider and deeper and there was second interdigital space, but interdigital space of 3rd and 4th were obscured by the overlapping and adduction of 4th toe over the 5th toe.

DISCUSSION
This anomaly of overlapping of 5th toe is also known as congenital digitus minimus varus or congenital digitus quinti varus which has 3 primary components known as triplane deformity. They are adduction in a transverse plane, dorsiflexion in sagittal plane and varus rotation in the form of external rotation in a frontal plane. All these movements occur at fifth metatarsophalangeal joint. Sometimes associated with contracture with in fifth toe. This deformity can be corrected surgically by Consolidated surgical approach which has given good result but statistical analysis is awaited for the clinical observations. This deformity was due to malposition of fifth toe for long time in the uterine cavity during intra uterine life. The biphalangeal fifth toe is one of the common variation in European population. The incidence is higher in Japanese population and it considered to be anatomical variation of triphalangeal fifth toe. The incidence of biphalangeal toe associated with hammer or claw toes is 65%, bunionettes-47% and overriding of fifth toe-37%. It is the group of hammer toe
or claw toe which is considered to be significantly high when compared that of control group (37%). It is concluded that the rigidity and stiffness caused by biphalangeal fifth toe is the predisposing for the formation of hammer or claw toe\(^9\) (ref 74). The single line of treatment for the correction of fifth adducted toe is Butler arthroplasty. A study was done in North America in the year 1968-1982 where thirty six operations have been conducted. Out of them, thirty operation were unilateral, six operation were bilateral. The study showed, thirty four out of thirty six has given excellent results.\(^{10}\) This deformity has to be corrected in the early part of life in order to prevent disability in later part of life\(^{11}\).

Legend-1, Photograph showing An unusual malposition of 4\(^{th}\) toe overwrelapping overlapping on 5\(^{th}\) toe.
WIDENING OF SPACE BETWEEN BIF TOE AND SECOND TOE ALSO SEEN

Legend-2 Photograph showing An unusual malposition of 4\(^{th}\) toe overwrelapping overlapping on 5\(^{th}\) toe.
WIDENING OF SPACE BETWEEN BIF TOE AND SECOND TOE ALSO SEEN

PRESENT STUDY
Has shown mal position and lower placement of 4th toe overriding on 5th toe unlike as found in the literatures where there is overriding of 5th toe on the 4th toe. Length of all the medial toes of the right foot were normal, but the length of 4th and 5th toes were very much shorter than the other toes in the same foot. First and second interdigital cleft were present but interdigital cleft between 3rd and 4th also 4th and 5th was obscured due to overriding of 4th on the fifth toe. This may be due to compression of toes in the uterine cavity during intrauterine life (as suggested by Lantzounis.) (ref 73) or may be developmental error causing malpositioning of 4th toe. There was no adducted position of the fifth toe which has caused disability. Fifth toe is not laterally rotated and there is no contraction of capsule of that metatarsophalangeal joint on its dorsal aspect.

**CONCLUSION**

The deformity of limbs has important embryological importance. Some times there may be associated anomalies. These deformities will be challenging for the orthopaedic surgeons to give the patients better life because very few deformities can be corrected surgically while others have high rate morbidity. Hence it has been studied and reported.

**TAKE HOME MESSAGE**

These anomalies of toes are causing difficulty in walking and in females, they are more conscious about their deformity. Hence, if operable they should be corrected in order to minimise their mental trauma as well for better gait.

**REFERENCES**


7) Michael S. Dounelt, DPM, FACFAS, Congenital Overlapping of fifth toe, Deformity: A Consolidated Surgical Approach


