The operative treatment of resistant club-foot / by E.H. Bradford.

ical means alone, provided the parents had sufficient persistency to continue the treatment for six months or a year or longer with daily or frequent visits; but where persistency and attention cannot be commanded, mechanical treatment becomes impossible, and these cases remain doomed to deformity unless some means can be devised which will enable the surgeon to cure in a short time. It is for this reason that operations on the bone, radical in character, are sometimes demanded which otherwise might have been avoided. The choice is between such methods as involve the least mutilation and give the best results in the speediest time.

Of these methods three deserve careful consideration: (1) Forcible correction, preceded by thorough division of the ligaments and tendons; (2) removal of the astragalus, an operation frequently performed on the European continent, and advocated lately by Dr. Morton, of Philadelphia;[1] (3) osteotomy of the neck of the os calcis and of the astragalus, preceded by careful division of the soft parts of the inner side of the foot.

It is not proposed to consider the claims of wedge-shaped resection of the tarsus, although this method has given good results. But anyone who has had experience with it will know that an unnecessary amount of bone is sacrificed where this method is relied upon.

Forcible correction, combined with division of the shortened soft tissues accessible to the knife, will be found to be a method which in a large majority, even of the most resistant cases, will prove entirely satisfactory. It has the advantage of avoiding any unnecessary sacrifice of bony tissue, and has given excellent results.

The accompanying illustrations will serve to show the fact that in cases of the severest type the method is capable of giving satisfactory results without any sacrifice of bony tissue (Figs. 3, 4, 5, 6).

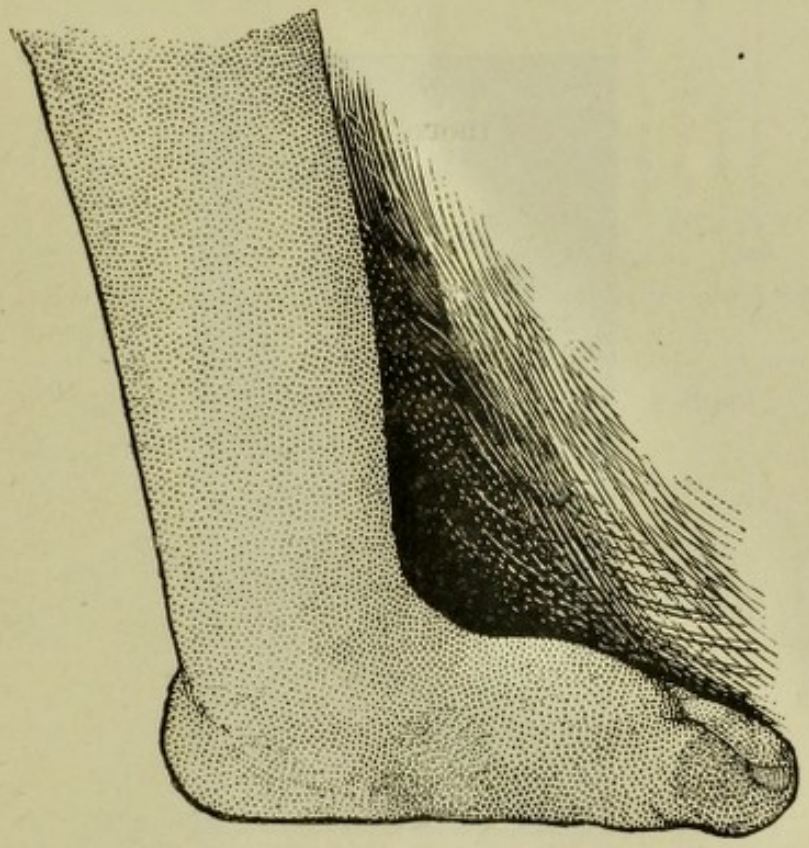
This case has already been reported in the *Revue d'Orthopédie*, March 1, 1892.

The foot-imprint represents the ultimate result three years after operation, and shows a sole of a foot entirely flat in walking, which three years before had been of the severest type of deformity, in a woman thirty-five years of age. A lever wrench was used in cor-

[1] Transactions of American Surgical Association, 1890, vol. viii. p. 71.

rection previous to tenotomy having been done. Two sittings were required, as the skin tore on the inner side of the foot at the first, and it was thought advisable to delay complete rectification until a fortnight had passed after the first sitting. The patient was enabled to walk about with crutches two weeks after the second operation, and a splint was applied one month later. The patient began to walk with the splint and a cane about this time, and she is now

FIG. 5.



Foot one year after forcible correction.]

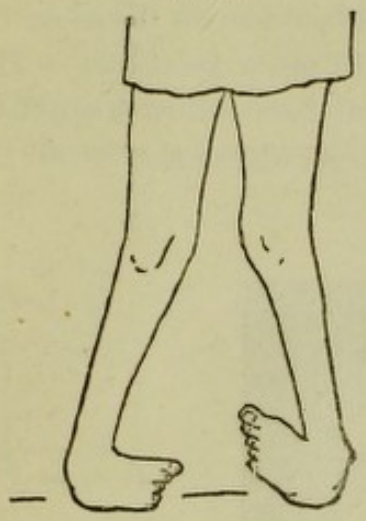
able to walk about freely without any appliance. It is now four years after the operation.

She suffered somewhat a year after the operation from the pain of flat-foot, the foot having been over-corrected, and the woman being stout and heavy. The cure may be considered complete and permanent.

In regard to a choice between open incision and subcutaneous division of the soft parts preceding forcible correction, in a majority of cases I have employed the subcutaneous method, using a section

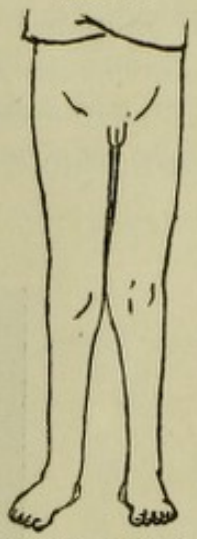
admit that the readiness with which everything is exposed, and the certainty with which everything can be divided, has led me to

Fig. 7.



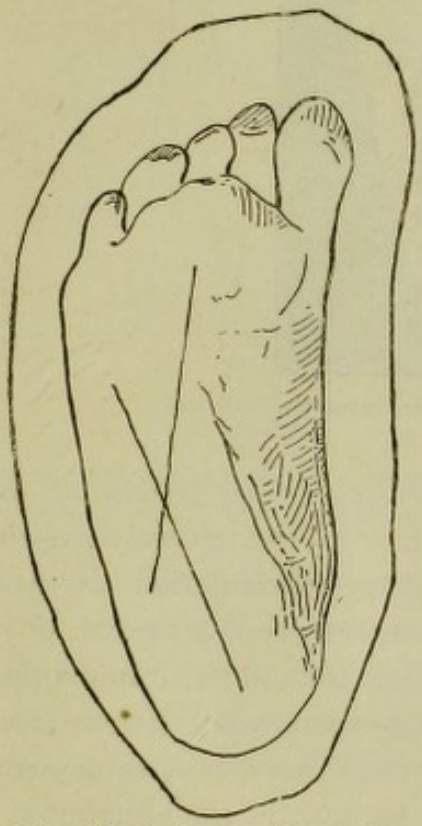
Congenital club-foot in a boy six years of age, drawn from a photograph.

Fig. 8.



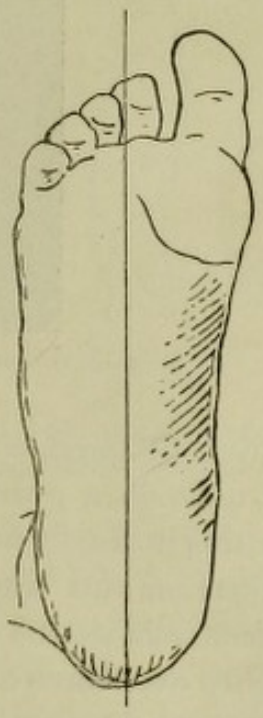
After forcible correction.

Fig. 9.



Plaster-of-Paris imprint from a boy of eleven, after excision of astragalus for resistant club-foot.

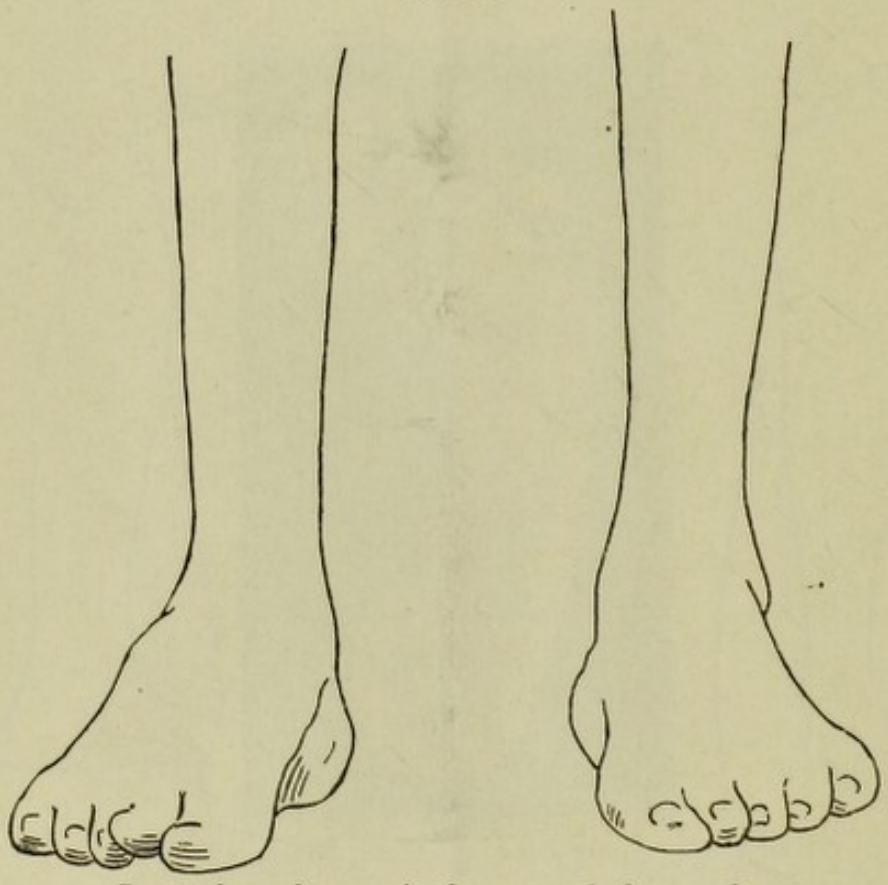
Fig. 10.



Drawn from photograph of foot of a boy of eleven, after osteotomy of neck of astragalus for club-foot.

I am unable to state in how large a percentage of cases complete correction by means of force is possible. In a large number of cases this is true, but experience has shown me, in the one hundred and sixty cases which have come under my care, that in five, relapses have occurred after satisfactory over-correction by force, as in the case just mentioned. In most of the cases the feet were small, the children being very young. I had explained this on

Fig. 14.

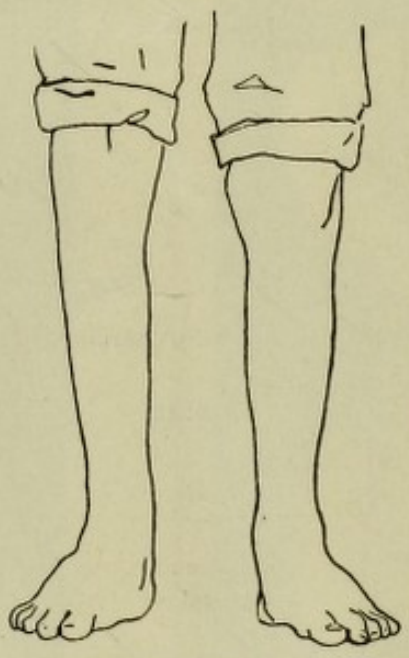


Drawn from photograph after removal of astragalus.

the supposition that owing to the elasticity of the bones in the feet of children, the force could not be applied in such a way as to rupture or stretch the contracted ligaments. It also seemed probable that in some instances deformity of bone was the impediment; and for this reason I have in the last year excised the astragalus in five cases, in the belief that the astragalus was the bone chiefly affected, and because excellent results were reported as following this operation, especially in the interesting article by Dr. Morton. The results in five cases operated upon by me in this way are

strated by complete flexibility and excellence in gait. There are at present no contractions either in the tendo Achillis, plantar fascia, or in any part of the foot. The foot can be placed readily in an over-corrected position. The child walks about without apparatus, which has been discarded for several years. There is a tendency, however, for the child to toe in, especially when running, and the footprint indicates that the anterior part of the foot turns to the inside. This appears to be due to the obliquity in the articulation of the facet of the os calcis. The same condition is

FIG. 23.



Drawn from photograph after operation.

seen in the photograph from the dissection in the Warren Museum (Fig. 16), and even better in a specimen of adult congenital club-foot prepared by Dr. Goldthwait.

On examination of this specimen, it will be clearly seen that the obstacles to the correction of this deformity do not lie alone in the distortion of the astragalus, nor in the ligamentous tissues which bind the scaphoid to the astragalus. After these may be removed, there remain evidences of distortion in the os calcis at its junction with the cuboid. The articulated surface of the os calcis, as it lies in contact with the cuboid, is oblique relative to the axis of the foot, rather than at right angles to this axis. It is manifest that