A new method of operating on Dupuytren's contraction of the palmar fascia : together with the successful use of neural infiltration in such operations / by W.W. Keen.

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A NEW METHOD OF OPERATING ON DUPUYTREN'S CONTRACTION OF THE PALMAR FASCIA,

TOGETHER WITH THE SUCCESSFUL USE OF NEURAL INFILTRATION IN SUCH OPERATIONS.[1]

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In *American Medicine* for October 31, 1903, p. 704, appears a brief paper read before this body two years ago, illustrating the successful use of neural infiltration of the median and ulnar nerves during an operation for Dupuytren's contraction of the fingers of the left hand. The patient was a woman then sixty-two years of age, whose general health was very poor and who also had a very troublesome chronic bronchitis and a very distinct cardiac murmur, and was exceedingly nervous about her heart and lungs. Hence, I used neural infiltration instead of general anæsthesia. The operation that I did for the Dupuytren contraction on her left hand was the one I have ordinarily done—namely, incision in the line of the pronounced bands and the removal by dissection of the contracting bands in the palmar fascia. October 16, 1905, two years and a half after this operation, I saw her again. The following notes illustrate her condition and the new operation that I was obliged to devise.

For some months past there have been appearing nodules and depressions in the skin of the right palm corresponding to a triangle with its apex at a point in the middle line of the hand just above a line drawn transversely to the web of the thumb, the base of the triangle being a line drawn between the margins of the forefinger and little fingers at the level of the knuckles (see illustration). There was evidently beginning contraction of the fascia and there would soon be contraction of all of the four fingers to a greater or lest extent. The nodules and pits were so diffused over the palm that is seemed to me impossible by incision in the axis where later the bands of contraction would develop satisfactorily to remove the contracting tissue. Moreover, the operation that I had already done upon the left hand, in which I had dissected out these bands, had been followed by a recurrence of the disease, so that the fingers of the left hand were contracted almost as badly as before the first operation.

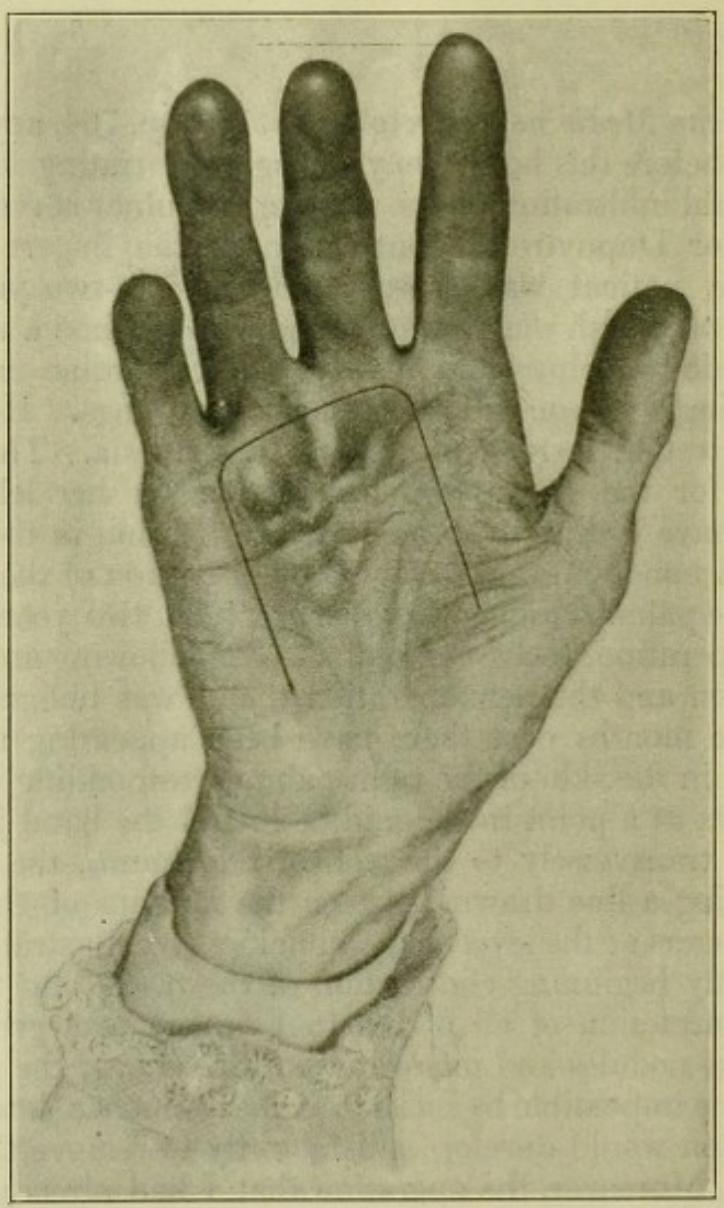
Accordingly I decided upon operation after a new plan. I first infiltrated the skin just above the wrist over the median and the

[1] Read before the College of Physicians of Philadelphia, November 1, 1905.

ulnar nerves with solution of beta-eucaine and adrenalin, of which the following is the formula:

Sol. adrenalin chloride	10 c.c.
Beta-eucaine	2 grams.
Sodii chloride	8 "
Aquæ destill. . . . . q. s. ad	200 c.c.

Having exposed these two nerves, I then injected a few drops of this same solution into the two nerves. After waiting for a considerable time I attempted to begin the operation, but found that it was exceedingly painful. Scarcely any diminution of sensation had



Early stage of Dupuytren's contraction of the palmar fascia. Note the nodules and puckered depressions. The line indicates the flap which included the palmar fascia.

been produced by the infiltration, although the injection at the site of the operations on the two nerves had been entirely satisfactory. I then injected into each nerve 4 or 5 drops of a 4 per cent. solution of cocaine, and within three minutes was able to

begin the operation without the slightest pain. In consequence of the very careful dissection in the palm, the operation lasted over half an hour. The local anæsthesia at its end was quite as satisfactory as at the beginning.

Operation, October 19, 1905. I began the incision at the ball of the thumb on a line with the interspace between the forefinger and middle finger, went down almost to the web between the forefinger and middle finger, then transversely to a point just above the web between the ring and little fingers, and up to the ball of the little finger at a point corresponding to the beginning of the incision on the other side of the hand (see the outline in the illustration). The dissection of the flap was begun at the transverse incision corresponding to the knuckles and went directly down to the sheaths of the tendons. I dissected back the entire flap, including on the under surface of the flap the entire palmar fascia. I then dissected away the palmar fascia from the under surface of the flap, the fingers of my assistant being on the palmar surface of the skin, so as to warn me if I got too close to the skin. At one point, in spite of this precaution, a small nick was made entirely through the skin. The whole of the flap turned back bled freely, of which I was very glad, as it showed the improbability of any sloughing.

In order to dissect out the fibres going to the index and the little fingers, I next undermined the skin overlying them, and was able readily to get at the beginning small bands of fibrous tissue which had not been turned back in the large flap. I tied half-a-dozen small vessels with catgut, so as to have as little danger from any effused blood as possible.

Union took place by first intention throughout both of the small operation wounds over the nerves and that in the palm of the hand. No sloughing whatever took place; even the little nick that I made inadvertently in the skin of the palm was rather advantageous, as it allowed what little blood was effused under the flap to escape. She was discharged from the hospital with almost normal motion of the fingers, and, undoubtedly, the use of the hand for a few days would entirely restore its function. She had no rise of temperature whatever after the operation.

Remarks. In this particular case the diffusion of the nodules all over the centre of the palm was such that the ordinary operation for dissecting out the contracting bands would have done no good. I therefore determined to remove the entire palmar fascia. To do this by dissecting up the skin alone would almost certainly have been followed by sloughing of the flap. By lifting a flap consisting of all the tissues of the palm down to the sheath of the tendons I was able to retain sufficient nourishment to the flap to prevent sloughing, and at the same time made the palmar fascia entirely accessible for removal. I was much pleased also to find that I could reach the parts going to the index and little fingers perfectly

well by simply undermining the skin. Had it been necessary an incision could have been carried along the axis of any of the fingers and a more extensive dissection made.

I am inclined to think that this method of operating on the palmar fascia may be desirable in other more advanced cases where there are distinct bands already formed, and I propose trying it in the next case of this character.