Seamstress's finger

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The term seamstress's finger can be found in medical texts, but a search of publications over the past 45 years failed to reveal a good description of the condition.¹ I describe here three cases in sewing machinists employed for many years in the same factory in the production of seat covers for cars. The work was paced, repetitive, and performed in a stereotyped way.

Case 1

A 56 year old right handed woman was seen with a two to three year history of aching in her right index finger. She had no other symptoms, there was no history of trauma to her hands or medical history of note, and she was taking no medication. She had worked as a sewing machinist in the same factory for 28 years and did dress making in her spare time.

She had a flexion deformity of the distal interphalangeal joint of the right index finger. There were prominent Heberden's nodes on the index and middle fingers and thumb of the right hand. Smaller Heberden's nodes were present on the index finger and thumb of her left hand. There was a prominent callosity on the right middle finger due to repeated friction from metal scissors. There were no signs of joint hypermobility.² *x* Ray films of her hands showed severe degenerative changes at the distal interphalangeal joint of the right index and middle fingers with loss of joint space, articular sclerosis, osteophytes, and bone cysts (figure). There was a particularly prominent dorsal osteophyte from the proximal end of the distal phalanx of the right index finger (figure). She was negative for serum rheumatoid factor.

Case 2

A 56 year old right handed woman was seen with pain in the fingers of her right hand and weakness

of grip in this hand. There was no relevant medical history. She had worked as a sewing machinist in the same factory for 16 years and for the four years before that as a seamstress. She made clothes and curtains in her spare time.

There were Heberden's nodes on the index, middle, and ring fingers and thumb of her dominant hand, but not her left hand. There was a callosity and lateral deviation of the terminal phalanx of the right ring finger from repeated use of metal scissors. There were no signs of neuropathy in the right hand and no evidence of joint hypermobility. *x* Ray films of her hands showed loss of joint space, artic-

x Ray films of the hands of one of the seamstresses showing severe osteoarthritis of the distal interphalangeal joints of the right index and middle fingers with coned lateral view of the index finger.

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ular sclerosis, osteophytes, and bone cysts at the distal interphalangeal joints of the index, middle, and ring fingers of the right but not the left hand. She was negative for serum rheumatoid factor.

Case 3

A 54 year old right handed woman was seen with pain in her right thumb, neck, and lower back. In the past she had been diagnosed as having cervical spondylitis, spina bifida occulta, tennis elbow, and bilateral carpal tunnel syndrome. There was no history of trauma to her right hand and she was taking ibuprofen for analgesia. She had worked as a sewing machinist in the same factory for 22 years.

She had Heberden's nodes on the index and middle fingers of her right hand. There was tenderness over the carpometacarpal region of the right thumb and the distal phalanx of the right ring finger was deviated laterally. There were no signs of joint hypermobility. *x* Ray films of her hands showed loss of joint space, articular sclerosis, osteophytes, and bone cysts in the distal interphalangeal joints of the index, middle, and ring fingers and sclerosis at the trapezioscapoid articulation of the right hand. The distal interphalangeal joint of the right ring finger was sub-luxed. She was negative for serum rheumatoid factor.

Discussion

Three cases of seamstress's finger are described in women who had worked as sewing machinists or seamstresses for more than 20 years. They all had osteoarthritis of at least one of the distal interphalangeal joints of the dominant hand and one had osteoarthritis at the base of the dominant thumb.

Radiological evidence of osteoarthritis was either absent or present to a much lesser degree in the non-dominant hand. Two of the ladies had lateral deviation of the terminal phalanx of their ring fingers and callosities on one or more digits of their dominant hand from repeated use of metal scissors.

It is possible to appreciate why osteoarthritis developed in the distal interphalangeal joints of the dominant hand as it was these joints, and in particular the distal interphalangeal joint of the index finger, that were repeatedly hyperextended during sewing procedures known as "top sewing" and "piping". Mechanical overload and disturbances of

blood flow would be maximal across these joints. Simple observation in normal subjects shows blanching of the skin across the distal interphalangeal joints in association with such a manoeuvre.

Radin *et al* have proposed a hypothesis for the aetiology of idiopathic osteoarthritis of the hands.³ It is that repeated flexion of the distal interphalangeal joints by the flexor profundus in precision gripping generates a force per unit area two to four-fold higher in these joints than in the other joints of the fingers. In these seamstresses however there was repeated extension rather than flexion of the distal interphalangeal joints suggesting that there is more than one mechanism for the generation of Heberden's nodes.

In a large study of workers doing different jobs in a woolen mill an association was found between osteoarthritic changes in the hands, hand dominance, and the pattern of use of the hands—that is, excess wrist or finger use was associated with corresponding degenerative disease of the wrist or fingers.⁴ Osteoarthritis of the hands has also been reported to be more prevalent in craftsmen than clerical workers. Further evidence in support of repeated trauma as an aetiological factor for degenerative hand disease is a report that hands weakened by hemiplegia or peripheral nerve injury do not generate Heberden's nodes.⁵

Since making these observations discussions have taken place with management in the factory to find ways to remove the need for "top sewing" and "piping" and to find an ergonomically improved alternative to dressmakers' scissors.

I thank Dr T E Rolfe for interpreting the *x* ray films and Professor P A Bacon for his comments.

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Accepted 19 October 1992