

Occupational Disease Casebook

Tenosynovitis



Labour Department
Occupational Safety and Health Branch



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Occupational Disease Casebook – Tenosynovitis

Introduction

“Tenosynovitis” of hand or forearm is caused by excessive movements of the muscles and tendons of the above parts, which result in traumatic inflammation of the tendons or tendon sheaths. The better known “Tennis Elbow” and “Golfer’s Elbow” also belong to this type of disease. The risk of developing this disease increases if quick, repetitive and strenuous movements of hands or forearms in awkward postures are required for prolonged periods at work.

There may be redness, swelling, heat, pain or decreased mobility in the affected parts. If the conditions are severe, work and daily activities may also be affected.

The objective of this booklet is to explain to employers and employees how certain working conditions give rise to tenosynovitis through some case studies. It also recommends some specific preventive measures for reference.

Case 1 : A Clerk suffering from “Tenosynovitis of the Wrist”

Case Summary

Ken had been working as a clerk for more than three years. Every day, he needed to use computer for typing and data input for a prolonged period of time.

About half a year ago, he started to have pain in his right wrist after operating a computer for a long time. The pain gradually increased afterwards. He felt pain and weakness not only during computer operation but also when doing some daily activities, such as wringing a towel or picking up a teapot. In addition, he noticed signs like redness, swelling and hotness in the wrist.

Subsequently, he attended the Occupational Health Clinic of the Labour Department, and the clinic doctor diagnosed his illness as “tenosynovitis of the wrist”.

Causes of the Illness

According to the doctor’s analysis, Ken contracted “tenosynovitis of the wrist” because of the following reasons:

- 1) Prolonged periods of repetitive and quick movements of the hands - Ken often typed, entered data and operated a mouse rapidly and

continuously for several hours in order to finish his work quickly. There was no opportunity for resting his hands.

- 2) Awkward wrist posture – Ken placed the keyboard and the mouse on his writing desk (See Figure 1). As the height of his seat was not adjustable and fixed at a relatively low level, he had to use the keyboard and the mouse with his wrists bended in an awkward posture (See Figure 2).



Figure1



Figure 2

The above conditions resulted in strain injury and inflammation of the tendons and tendon sheaths of the wrist.

Preventive Measures

The following measures can be adopted to prevent Ken's and similar cases:

- 1) Avoid prolonged use of computer to reduce repetitive movements of the hands
 - Perform different types of work alternately. For example, after using the computer for 1 to 2 hours, do some writing or document processing work.
 - Arrange periodic rest breaks.

2) Pay attention to the workstation design and working posture

- Use a height-adjustable chair to match the height of the desk. The elbows should be at the same level of the input devices and the wrist should be kept straight when using the keyboard and the mouse.



Figure 3

- If the desk is too high, a pull-out tray can be installed underneath the desk for the keyboard and the mouse (See Figure 3). Alternatively, you may use a separate computer desk for computer operation.
 - If frequent use of computer for data input is required, a wrist rest may be used if the user finds its use more comfortable. A suitable wrist rest not only provides comfortable padding but also keeps the wrist straight when typing at the keyboard.
- ## 3) Do more relaxing and stretching exercises for the hands and wrists.

Case 2 : A Librarian suffering from “Tenosynovitis of the Thumb” (De Quervain’s Disease)

Case Summary

Miss Chan had been working as a librarian for more than 8 years. She was mainly responsible for carrying books and putting them back to the shelves.

A year ago, Miss Chan began to have pain at the base of her right thumb near the lateral part of the right wrist when she grasped the books (See Figure 4). Sometimes, she noticed swelling and stiffness at night. At first, she took some pain-killers and applied analgesic ointment on her own. However, the situation got worse. She felt pain and weakness in the affected area not only when grasping books but also when holding a pen. Subsequently, she attended the Occupational Health Clinic of the Labour Department and was diagnosed to have “tenosynovitis of the thumb” (de Quervain’s disease).

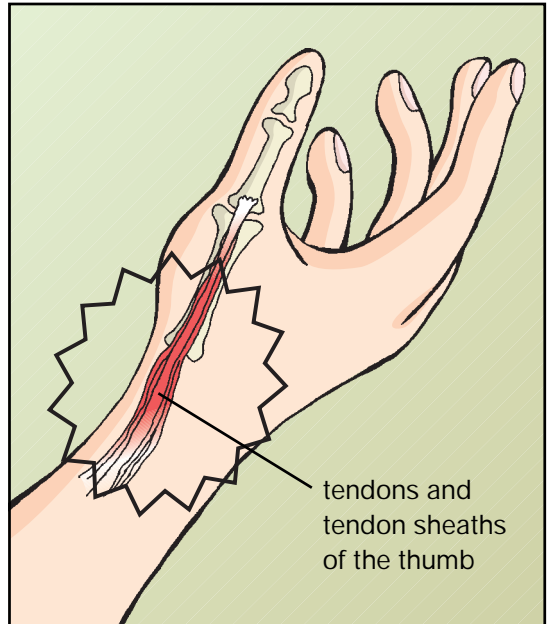


Figure 4

Causes of the Illness

The doctor assessed the work of Miss Chan and identified several causes for her disease:

- 1) She frequently grasped the books firmly with her right thumb and fingers.
- 2) When the workload was heavy, she often held several books together with her right hand and placed them on the shelves at one go. This required a greater degree of stretching of her right thumb and extra-grip strength. (See Figure 5)



Figure 5

3) When she placed the books on the shelves, the lateral part of her right wrist had to stretch and bear the weight of the books, particularly when she placed the books on the higher shelves because she did not make use of suitable footstep or ladder. As a result, the lateral part of the right wrist was stretched even more. (See Figure 6)



Figure 6

Preventive Measures

The following measures can be adopted to prevent developing similar illness as Miss Chan's:

1) Avoid over-exertion of the thumbs and wrists

- Do not hold many books with one hand at one go.
- Use both hands to hold heavy or thick books (See Figure 7).



Figure 7

- 2) Avoid situations leading to awkward bending of the hands
 - Avoid holding many books with one hand as far as possible because tendons of the thumb can be injured by the excessive stretching.
 - Footsteps or ladders should be used when placing books on the higher shelves to avoid excessive stretching of the lateral part of the wrist.
- 3) Avoid prolonged and repetitive movements of hands and wrists
 - Perform book handling duties alternately with other types of work such as writing documents, updating book catalogues, etc.
 - Arrange periodic rest breaks.
- 4) Do more relaxing and stretching exercises for the hands and wrists.

Case 3 : A Cook suffering from “Tennis Elbow”

Case Summary

Mary had been working as a cook in an elderly home for over four years. She needed to handle a lot of food every day. For example, she had to cut vegetables, chop meat, blend food, open cans of food and then cook them. She was also required to clean the stoves and the cooking utensils. About a year ago, Mary started to feel soreness on the lateral part of her right elbow and forearm. Later on, the symptoms worsened. She felt pain not only at work but also during rest. She had to take sick leave frequently. The doctor told her that she was suffering from “lateral epicondylitis”, which was commonly known as “tennis elbow”.

Causes of the Illness

According to the doctor’s analysis, Mary contracted “tennis elbow” because of the following reasons:

- 1) She performed repetitive stretching and bending movements of her wrists frequently in cutting, chopping, stir-frying and cooking of food.
- 2) Forceful exertion of the muscles of her wrists and forearms was frequently required while spading a large amount of food (See Figure 8), carrying cauldron filled with soup, lifting and moving large sacks of rice, as well as cleaning big stoves and cooking utensils.
- 3) Heavy workload and tight schedule.



Figure 8

Preventive Measures

The following measures can be used to prevent developing similar illness as Mary's:

1) Avoid over-exertion of wrists and forearms

- Sharpen the knife regularly so as to minimize the efforts required for cutting and chopping food.
- Use cooking utensils (i.e. cauldron, wok and ladle) of smaller size.
- If lifting or moving heavy loads of rice or food is required, ask another colleague to help (See Figure 9) or use a trolley as an aid.

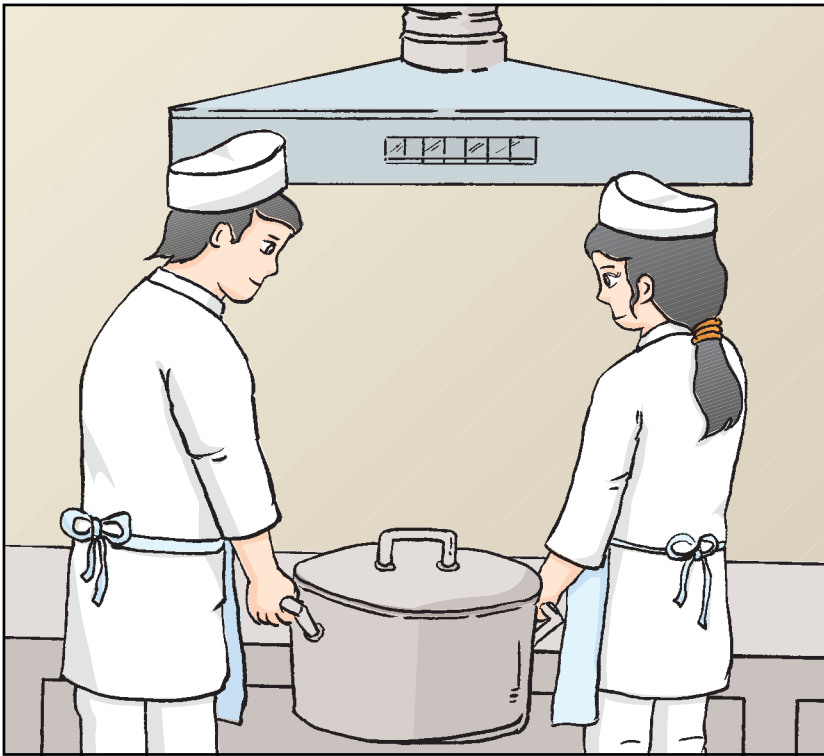


Figure 9

2) Pay attention to the workplace design and working posture

- The working platform and stoves should be of appropriate height so that the position of the hands would not be higher than the waist level when doing work like cutting or stir-frying.
- If the working platform and stoves are too high or the cook is rather short, a stable stage of appropriate height should be installed for her to stand on to work.

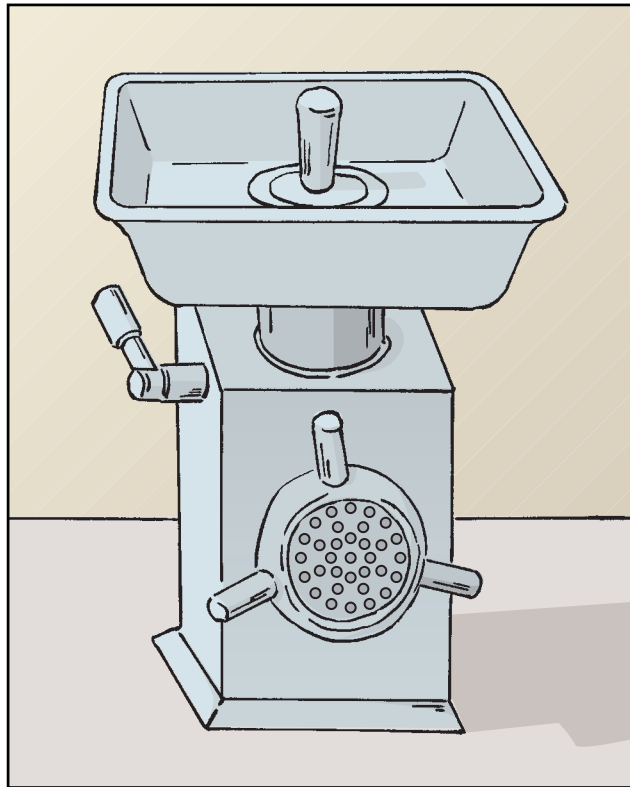


Figure 10

3) Avoid prolonged and repetitive movements of wrist

- Use suitable mechanical aids, such as mincers (See Figure 10), blenders and tin openers, etc.
- Arrange periodic rest breaks

4) Do more relaxing and stretching exercises for the upper limbs.

Case 4 : A Construction Site Worker suffering from “Tennis Elbow” and “Golfer’s Elbow”

Case Summary

Derrick had been working as a labourer in construction sites for more than five years. He had to perform manual handling of a large amount of construction materials such as sand, gravel, concrete, bars and planks every day. Besides, he often used a spade to dig the earth, a big hammer to break the concrete and a crowbar to remove nails. A year ago, he began to have pain on both sides of his right elbow. He even felt pain and weakness in moving tables and chairs or taking a bath at home. The doctor diagnosed that he was suffering from “lateral epicondylitis” and “medial epicondylitis”, which were commonly known as “tennis elbow” and “golfer’s elbow” respectively (See Figure 11).

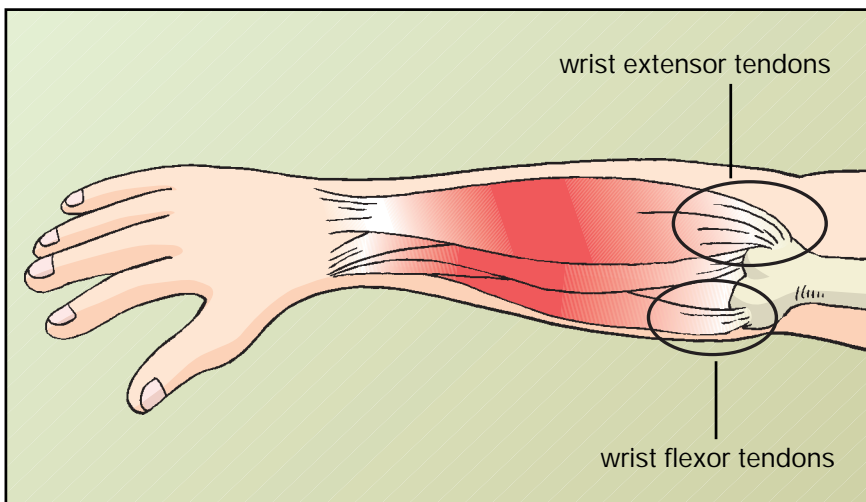


Figure 11

Causes of the Illness

According to the doctor's assessment, the causes for Derrick's "tennis elbow" and "golfer's elbow" included the following:

- 1) Repetitive and forceful movements of his right wrist and forearm were frequently required. (See Figure 12)



Figure 12

- 2) Proper manual lifting techniques were not adopted. He often lifted up construction materials from the ground onto his shoulders very quickly, and that overstrained his wrists and forearms.
- 3) He liked working fast and often handled heavy construction materials hastily by himself without using suitable lifting aids or seeking assistance from his fellow workers.

Preventive Measures

The following measures can be adopted to prevent developing similar illness as Derrick's:

- 1) Avoid over-exertion of the wrists and forearms
 - Try all possible means to use mechanical aids to replace or assist the manual work processes, such as using an excavator for digging.
 - Use the correct method to handle construction materials and do not lift them up quickly by hands.
 - Seek help of his fellow workers or use a wheel barrow when handling bulky or heavy materials (See Figure 13).

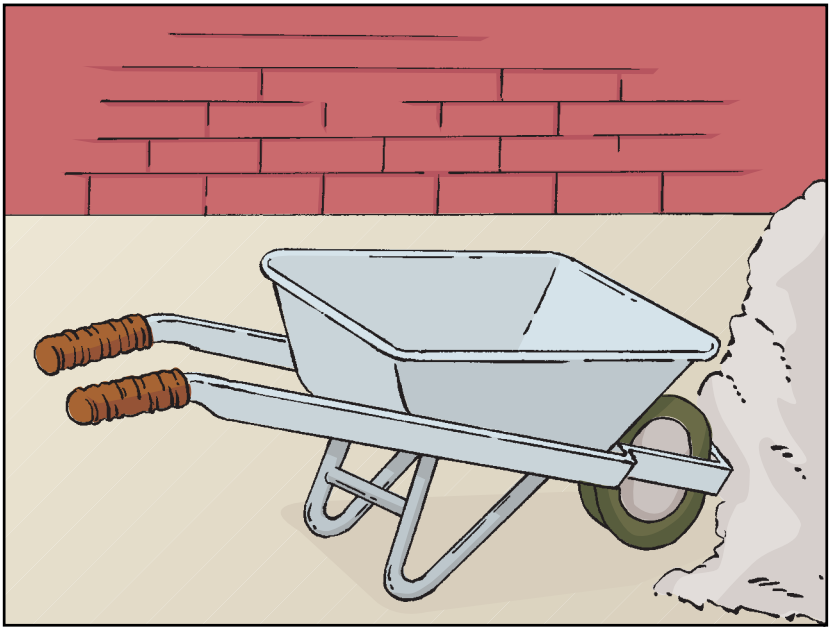


Figure 13

- 2) Suitable rest break arrangement can reduce the risks of cumulative trauma to muscles and tendons.
- 3) Do more relaxing and stretching exercises for the upper limbs.

Conclusion

Although this booklet has only presented four cases of tenosynovitis from different industries, the causes involved and the respective preventive measures are also useful to employers and employees of other trades.

In fact, the prevention of “tenosynovitis” of the hand or forearm is based on three principles:

- 1) Avoid quick and repetitive movements of the hands for a prolonged period of time.
- 2) Reduce forceful exertion by the hands and forearms.
- 3) Work in correct and comfortable postures.

Employers and employees can take appropriate preventive measures in accordance with the three principles to reduce the risks of developing “tenosynovitis” of the hand or forearm.

“Tenosynovitis” of the hand or forearm arising from work is one of the occupational diseases prescribed in the Employees’ Compensation Ordinance. If you suspect that you have this disease or any other occupational diseases, you are welcome to make an appointment for consultation at the Occupational Health Clinic of the Labour Department.

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Kwun Tong
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Telephone : 2343 7133

Enquiry Service

For enquiries on this booklet or advice on occupational health and hygiene matters, please contact the Occupational Safety and Health Branch through:

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Information on the services offered by the Labour Department and on major labour legislation can also be found by visiting our website <http://www.labour.gov.hk>.

Information on the services offered by the Occupational Safety & Health Council can be obtained through hotline 2739 9000.

