

## **Cervical arthrosis**

### **How posturology becomes an highly efficient tool against arthrosis**

Authors:

*prof. Daniele **RAGGI***

*Degree in Sport Science, Physiotherapist, Posturologist, Mézières practitioner.*

*Lecturer in Posturology c/o School of Medicine (Department of Experimental Medicine and Pathology), Università "La Sapienza" in Rome and c/o School of Sport Science, Università Cattolica in Milan. Director of Posturalmed (Posturology studio) in Milan.*

*Carmen **PELIZZOLI***

*Masso physiotherapist and Kinesitherapist*

Arthrosis is defined as a more and more diffused degenerative articular pathology affecting especially the joints of vertebral column, knee and hip.

In Italy about four million people suffer from it. Among these, 80% are old people and about 18% are working age people (from 19 to 60 years old). In many cases, this pathology generates invalidity, with a huge impact on national economy at the expense of the State.

If prevention was more discussed, a lot could be done against this pathology. This article will deal about arthrosis development. In particular, cervical arthrosis is nowadays very spread, due to the current life style full of stress, tensions, and wrong postures taken on during the long time we spend sitting in the office or in the car. Moreover, the cervical tract pays for the consequences of shoulders attitudes, which generally express people's character, social role, impact on reality, etc.

#### **LET US KNOW ARTHROSIS**

Arthrosis can be considered as a chronic-degenerative pathology that initially forms and develops in an underhand manner; it can be asymptomatic for a long time and, in some cases, never displays. It affects joints, whose suffering is caused by excessive tensions, compression and usury of the articular cartilages, with consequent modification of all the elements constituting the joint (articular heads, capsule, ligaments, and tendons). It starts with the usury followed by the loss of the cartilage covering articular heads, so cells producing cartilaginous tissue (chondrocytes) decrease and catabolic substances produced by this skeletal degenerative process are engulfed by the macrophages, which in turn produce a local inflammatory process, further damaging the condition of the articular relationship.

## **How can symptoms of cervical arthrosis be recognized?**

The symptoms of cervical arthrosis are characterized by pain coming not from the joint, which has no nerve endings, but from the inflammation of synovial membrane, ligaments and muscles sprains, bone micro fractures, etc. Cervical arthrosis at the beginning is usually asymptomatic, but if the patients undergo an accurate postural analysis, it is possible to identify a local muscular stiffness, functional limitations or postural alterations. The most frequent painful symptoms manifest themselves in the morning, then tend to disappear during the day, and to come back in the evening. With the progression of the illness they are likely to sharpen, causing uninterrupted suffering and a reduction of the motor skills. Apart from being characterized by a dull, stabbing and constant pain at neck, nape and shoulder level, the painful typology of arthrosis can show also neurological symptoms, such as radiculitis, neuritis, and so compressions of the nerve trunks coming out from the spinal cord. Speaking of that, if the functionality of the vagus nerve is compromised, this condition can manifest itself in terms of symptoms affecting the main organs, often non-attributable to the generative cervical pathology.

Here are some examples of the main disturbs.

Stiffness and pain in the neck: a retracted musculature prevents physiological mobility and movements, and pain in turn leads to antalgic positions, which tend to stiffen the neck even more, reducing its ability to move.

Headache: it can come in the orbital region and usually increases with head movement.

Nausea: it is the most frequent symptom after local pain and it is accompanied by nape heaviness; it gets worse in supine position.

Superior limbs pain: the pain is irritating, burning, often unexpected, and can be accompanied by paresthesia, formication and/or strength decrease.

Swallowing disturbs: difficulty both in swallowing and breathing.

Tachycardia: a reduced functionality of the vagus nerve innervating the heart that can provoke an increase of the heart rate.

Digestive system disturbs: stomach acidity, burning, and spasms at cardias and pylorus level that can be caused by an excessive production of gastric acid.

Sight problems: sight reduction, scotomas, burning, etc., due to the compression of blood vessels that reach the brain through the cervical vertebrae. Also hearing problems are possible: hearing reduction, tinnitus, and feeling of auricular compression.

## **Muscles decisive role**

The causes of this complex pathology can be various: traumas, stress, malformations, overload, obesity, age, wrong postures, and endocrine and metabolic imbalances.

Almost all the mentioned factors have in common muscular tension; it is therefore spontaneous to ask ourselves how a muscle, which has lost part of its normal elasticity, becomes responsible for such pathology. Our daily life, stress, wrong postures, traumas, worries, and failures make us assume a closure attitude in order to survive and defend ourselves. That closure over the time becomes a status, a fixed condition in which our muscles are forced to work. They tend to fix themselves in such condition, too, and this is why people have more and more short and retracted muscles day after day.

### **Muscular retractions**

The excessive tension a muscle undergoes (coming from too many anxious stimuli and activities, fears, hypokinesia, antalgic attitudes, traumas, immobilizations, etc.) leads the connective tissue to lose elasticity due to the lack of stretching solicitation. If the connective tissue, i.e. the component around the muscular fibers (and so around the sarcomeres) loses elasticity, it will tend to transfer such stiffness and limits to the muscle itself.

Since life is not easy for anyone, our muscles will never result too relaxed; they will tend to be too tense, instead, and the ones that are more under tension will become permanently shorter, i.e. “retracted”.

Since a muscle to generate movement has to climb over at least one joint, it seems obvious that if it becomes shorter it will cause an “hyper pressure” inside the joint, i.e. an excessive pressure that will reduce the mobility and the plasticity of the movement. In case movement has to be granted to survive, the body will find a way to escape the excessive pressure: it will determine an axial rotation of an articular head. This is why we can find an internally rotated femur and so patellae that are no parallel anymore, with a consequent fall of the arches of the foot. It is also possible to find a forward rotated shoulder, a prone forearm, etc.

Such phenomenon can extend to any joint; axial rotation, as a matter of fact, is likely to happen since muscles hardly ever run parallel to the joint, but often climb it over obliquely.

### **The role of the muscular chains in articular coaptation**

Once the process of retraction in an area of the body has started (for instance, by working at the computer with a shoulder staying higher than the other one, every day for weeks or months), as an effect of the antalgic mechanism and of the muscular chains some “migrations” of the bother are created in other areas. According to this mechanic, a problem developed in a region of the body can move to an opposite part, so that the body experiences as less disturb as possible and can grant the best functionality and survival.

### **The law of the antalgic compensations**

The body will try to move tensions and disturbs where they will cause a minor annoyance and loss of functionality. When the body feels pain, if it cannot move it through the muscular chains, it will try at least to reduce the movement causing it. It is when areas of reduced functionality with antalgic purpose appear. If a part of the body loses its functionality, the body finds instinctive survival systems. For instance, if knees are painful when bending, it will be instinctive to bend using the lumbar region to pick up something from the ground, in order not to feel knee pain. However, we know that the lumbar region should not take on the responsibility of this action when it is overloaded; otherwise the risks are discal protrusions and herniated disc.

The crucial point is that the body never acts “thinking” about the “future” consequences of the compensations it generates. Its aim is to satisfy a current need or emergency, without feeling pain at present time. This gesture of bending the bust forward, which allows the body to survive in this moment, over the time will probably become a risky gesture that will cause lumbar pain. At that time, the mechanism of the compensations will come back, so the whole antalgic system will start again, this time in order to reduce the lumbar movement by increasing the movement of another area to prevent the system from suffering. A cause-effect system has started and it can go on for a long time, until the body cannot compensate anymore. When stiffness will be too high or the defense system will not be able to intervene anymore, pain will become chronic and the body will progressively reduce its functions.

### **Cause and effect: the diaphragm**

Observing the breathing mechanics and the diaphragm in action, it is possible to see that the diaphragm, with its dome shape (two linked domes, actually), expresses its function in a correct way only if the muscular tissue remains elastic. An always tense diaphragm will gradually lose its ability to move amply and completely, resulting retracted. Which are the main causes of tensions and retractions in the diaphragm? Anxiety, fears, pain, stress, traumas, accidents, lack of physical activity, or wrong/excessive physical activity: in other words, the same ones contributing in making all the other muscles becoming stiffed. The percentage of function the diaphragm loses will have to be proportionately substituted by the work of accessory muscles.

### **Mechanics of the breathing accessory muscles**

We know that some of the most important breathing accessory muscles originating in the cervical vertebrae insert in the ribs. As the diaphragm is substituted by these accessory muscles, the cervical region has to carry out a task that does not belong to it: to be a crucial point for the breathing.

This fact, repeated for millions of breaths, will cause a remarkable and undue stress to the cervical vertebrae, entailing postural, compressive and degenerative problems.

What has been said so far can be summarized using an aphorism: “There is no freedom in the shoulders if there is no freedom in the diaphragm”, as Françoise Mézières used to say. A hypo-functioning diaphragm will be supported by the breathing accessory muscles at the expense of the cervical region. Other annoyances that can show due to a too tense and retracted diaphragm are: visceral compressions, digestive problems, difficulties in venous return and lymphatic circulation, hiatal hernias, heart problems, gastritis, discal pain, cervical hernias, postural alterations, etc.

### Global vision

What we propose is a therapeutic intervention based on a global vision. In light of what has been said so far, in fact, to treat arthrosis in the cervical region with a global approach the first thing to do will be to restore the diaphragm functionality. We start with maneuvers that have to be done on the diaphragm using specific manual release techniques and focused exercises. One of the maneuvers directed to the diaphragm is the one shown in figure 1 and it has to be done with expertise and precision.



Figure 1

The patient is laid down; the legs are leant against the dedicated surface, which will have an inclination of 20/25° to avoid tension of the abdominal region that would prevent the therapist from reaching the diaphragm. The inclination of the back side is of 15/20°, in order to allow gravity to act on the viscera and to push the diaphragm upward, to where we want it to return. The position of the hands is the one showed in the picture, naturally respecting the initial conditions

of the patient. Once the therapist has put his/her thumb close to the breastbone, the patient is asked to inhale gently, in order to make the diaphragm fibers push against the thumb of the therapist to create a kind of auto massage. Every 5-8 breaths the hand moves until it reaches the eleventh rib extremity. At every passage it will be clear how the tissue allows the hand to gradually reach the highest fibers. In some cases, in patients having a very stiff and tense diaphragm, both hands can be used.

The “magic” of this treatment is that while you are treating the diaphragm the posterior chain results in tension and aligned, since it is in a decompensated plane on Pancafit® and therefore it can have very

interesting reactions determining a radical change in patient's condition. These changes, that are generally immediate and often very evident, give the patient a clear sensation of a more mobile diaphragm, a better ventilatory function and a feeling of lightness. Consequently, also posture will change.

Do you want to do a very interesting test that can demonstrate how a tense and retracted hemi diaphragm can be responsible for an eventual scoliosis, too? Treat just one hemi diaphragm, as it is shown in the picture, then make the patient stand up, do the postural analysis again and observe his/her posture!

After working on the diaphragm, we will act on the stretching of the accessory muscles of the neck, which have been used for too much time in support of a hypo-functioning diaphragm, have in their turn become retracted as well. The exercise shown in figure 2 explains how to treat the neck muscles with an easy control of the compensation mechanisms.

The subject is supine, the head turned on one side; the therapist has to exercise an axial stretching of the neck at every expiration phase. Expirations have to be made in a free, passive way, in order to avoid a lordosis in the lumbar and/or in the thoracic region caused by the expiratory muscles that are synergic to the diaphragm, such as the transverse abdominal muscle which insert with its fibers in the



Figure 2

transverse processes of the lumbar vertebrae. With the therapist's thumbs moving in the opposite direction but axially to the neck, it is possible to exercise frictions on the muscles in order to improve the stretching action.



Figure 3

The second exercise acts on the lateral muscles of the neck, especially the scalene muscles. As you can see from the picture, the action of the therapist is very incisive: it prevents the shoulders from compensating and the diaphragm from blocking itself. Due to the non-compensated position on Pancafit®, the lumbar region cannot compensate by increasing its lordosis. In this phase moderate tensions are experienced along the whole posterior muscular chain.

These are just some of the numerous exercises that can be done with this method (Metodo Raggi® - Pancafit®) for the treatment of this pathology.

## Conclusions

One of the big matters therapists have to face every day is the sense of defeat: “There is nothing left to do”, together with “resignation” are typical of many people suffering from a chronic-degenerative disease. Arthrosis is in fact considered as something you can do nothing about. The method we propose, though, offers the chance to relieve the pain in cervical arthrosis. Giving back a proper functionality to the compromised articular structures, as a matter of fact, allows the youngsters to prevent those tensile states which over the time develop into articular degenerations. In adults and elderly people it represents a chance to limit the damages making the degenerative processes regress.

Moreover, this method of work, based on the principle of the “global non-compensated muscular stretching” with Pancafit®, offers a general rebalance of the musculature, definitely improving the quality of life of those who had lost their energy, will to do and to move. This is possible thanks to the interaction of different elements aiming to find the real hidden cause and therefore to eliminate the adverse effect.

*For more information on the Raggi Method®- Pancafit® please address to  
Posturalmed S.A.*

*Tel. +39 0239257427 or +39 0239265686*

*- Fax +39 0239200420*

*Email: [corsi@posturalmed.com](mailto:corsi@posturalmed.com)*

*Website: [www.posturalmed.com](http://www.posturalmed.com)*