RESEARCH HYPOTHESIS UPON THE BUBBLE FORMATION IN THE CONNECTIVAL TISSUE

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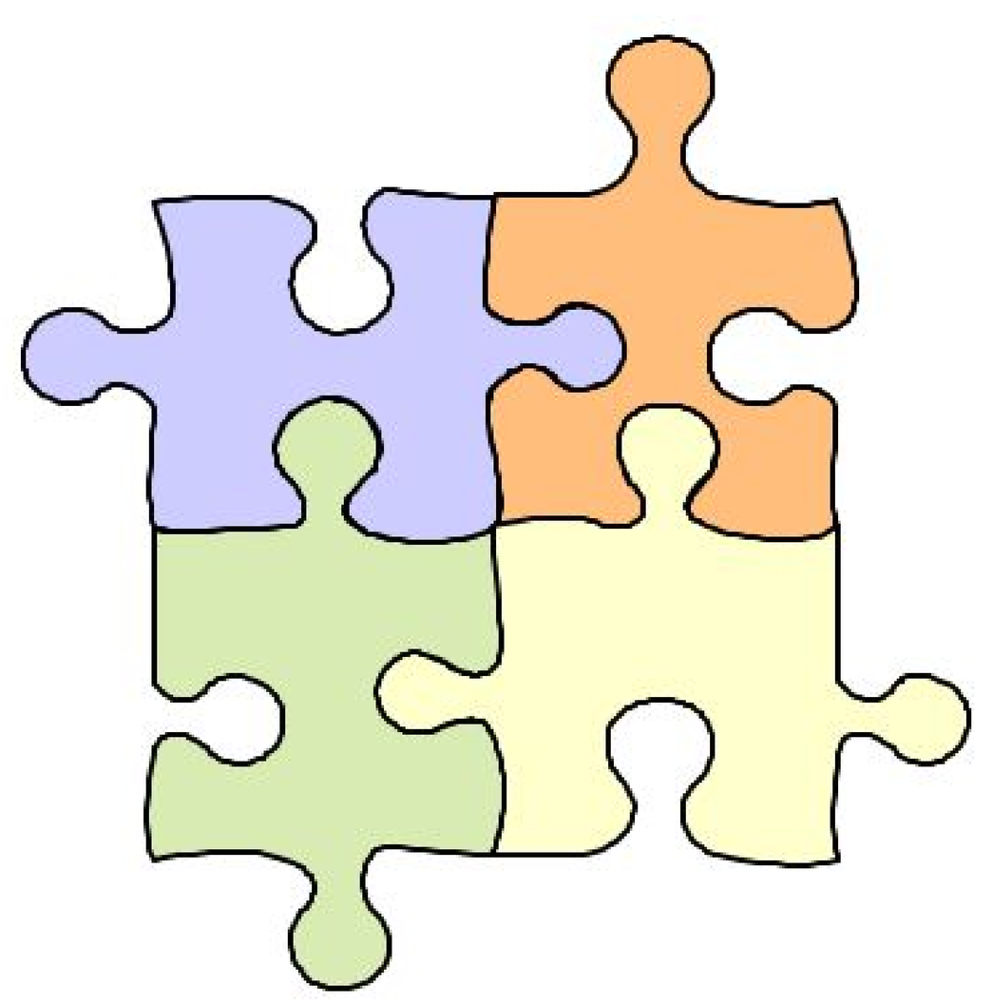

Background: Bubble generation following underwater activity is a prerogative of imperfect systems. Amid the most accredited theories, as per the basis for bubble formation, You can find some of them either considering the presence of gaseous micronuclei or assuming the formation of cavitation nuclei. A "baby-bubble" does become evident in a mixed micro-environment: in fact while at one side you can find the vascular bed, the extra-cellular tissue drainage system, at the other side the cell inner elements. In both cases, or in the bubble peripheral formation thesis at least, the event location appears to be the extracellular matrix: the connectival tissue.

Materials and Methods: This hypothesis does appear to be confirmed thanks to The following two observations: the first one is related to those so-called "minor" clinical presentations, that seem to be due to a lymphatic system impairment (to a deficit that is starting out just from the very inner part of the matrix), the latter one is a recent meaningful observational clinical occurrence of ours. Ten subjects suffering from Type-II Decompression Illness (DCI) neurological sequelae were treated with a phytotherapic extract (Abies-pectinata, Castanea-vesca, Juglans-regia,Vitis-vinifera, Eritrite, and Uncaria-tomentosa) with specific capabilities to drain the connectival tissue: 50 drops in _ glass of water, 3 times/day, for 3 mths. On 30th-Day we submitted the subject an interview test, followed by a complete neurological clinical examination (included both a hypoestesia zone mapping and The muscular impairment grading).

Patient's initials	Diagnosis at patient DHM-Unit admittance	Neurological examination	Tx protocol applied	Symptoms at the end of the treatment	Symptoms at 3 mths from the treatment Outcome: (---- +++)
ES	Type II – DeCompression Illness (DCI) [medullar involvement]	Left foot sensorial impairment. Omolateral strength loss. Hyperreflexia.	US NAVY TT6 + 20 FT (*) + § (**)	Spotted hypoesthesia.	Outcome +++ Restitutio ad integrum
DA	Type I - DCI [an osteo-myo-articular pain presentation]	Left scapular-humeral pain and inguinal saddle anaesthesia.	USN TT5 + § (**)	Saddle anaesthesia persistence.	Outcome +++ Restitutio ad integrum
AC	Type I – DCI [vestibular kind]	Vertigo. Vomiting. Tinnitus.	US NAVY TT6 + 10 FT (*) + § (**)	Tinnitus and unstableness persistence.	Outcome ++/++ Tinnitus persistence.
RC	Type II – DCI [medullar involvement]	Lower limb anaesthesia (up to the right knee and left ankle respectively). Impossibility to keep the upright position due to the strength loss.	US NAVY TT6 + 17 FT (*) + § (**)	Right foot and right hyperreflexia persistence.	Outcome +++ Restitutio ad integrum.
PC	Type II – DCI [medullar involvement]	Pain and upper limb motory impairment.	US NAVY TT6 + 15 FT (*) + § (**)	Movement impairment (mostly right upper sectors with concomitant strength loss).	Outcome ++/+++ An almost total strenght loss recovery, but a slight right motory hindrance persistence.
FC	Type II – DCI [medullar involvement]	Left foot anaesthesia and saddle one. Less intense similar counterlateral symptoms. Bladder paralysis. Marked uneasiness.	US NAVY TT6 + 20 FT (*) + § (**)	Bladder recovery. Saddle anaesthesia areas persistence.	Outcome ++ Saddle anaesthesia persistence, diminished as per area extension.
LS	Type II – DCI [medullar involvement]	Left (foot and leg) strenght loss.	US NAVY TT6 + 10 FT (*) + § (**)	Mild left claudicatio	Outcome +++ Restitutio ad integrum.
GE	Type II – DCI [medullar involvement]	Bilateral lower extremity anaesthesia (up to the knees).	US NAVY TT6 + 15 FT (*) + § (**)	Right foot anaesthesia.	Outcome +++ Restitutio ad integrum.
FB	Type II – DCI [medullar involvement]	Paraparesis and complete bilateral sensibility loss.	US NAVY TT6 + 10 FT (*) + § (**)	Early recovery, started at the very first Tx (assistance given within 5').	Outcome ++/+++ Spotted hypoesthesia still left.
MM	Type I – DCI [vestibular kind]	Dizziness. Vomiting.	US NAVY TT6 + § (**)	Subjective unstableness.	Outcome +++ Restitutio ad integrum.

(*) Any further treatment (FT) according the following standard: 25'x3 O_2 and 5'x2 interposed air-breaks @ 15 meters of water column (2.5 ATA = 147.1 kPa).
(**) All the considered cases have been treated with the phytotherapic extract soon after the last HBO_2 programmed therapy. § stands for: Abies-pectinata, Castanea-vesca, Juglans-regia, Vitis-vinifera, Eritrite, Uncaria-tomentosa; dose applied: 50 drops in a glass of water, three times a day (before meals), for three months.

Results: We observed both subjective and objective sharp improvements in the whole group.

Conclusions: There is no control group as the study started as a practical application of a specific phytotherapic expertize more than with the classical scientific approach usually due; nevertheless it does seem to validate that to improve the connective tissue drainage could be useful both at the epi-crisis time and at the functional recovery stage of a DCI occurrence.

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