Osteoarthritis of Knee and Hip

Structural Yoga Therapy Research Paper

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1. Initial intake: Review of Symptoms, Subjective Pain Level, Self-Assessment

Case Study: Knee and hip pain and dysfunction due to osteoarthritis

Mary is 70+ years old, married, formerly a teacher. She presently works with her husband, a semi-retired financial planner. She is a very active traveler, frequently entertains friends and family, and enjoys beach and swimming. She has been attending yoga class weekly for the past 3 years. She has been under treatment for hypertension and is finally stable on medication. She is petite (5') and about 30 pounds overweight. Before her knee got very bad, she would walk 1 hour 3-4 times per week.

Initial Chief complaint: painful right knee, arthritis in right hip.
Overview: When I first saw Mary on 3/20/02, she had had arthritic pain in her right hip confirmed by x-ray about 10 years ago. The knee pain is a newer problem and she suspects it is also arthritis. Five months later, in August, the nature of the pain had changed to radiating from the right buttock down the side of the leg to the center of her kneecap. Mary was seen six times over a year and a half. At first, her pain was not incapacitating and she was mostly responding to my need to study SYT examination techniques and was not motivated to follow through with recommendations. However, by April 2003, she had pain in her knee that was truly limiting her mobility. When she heard that I was going to use her as a case study, she decided to really work at the recommended program "to help me pass".

Eight months later, (4/21/03), the pain in her knee was very bad; she could not alternate on stairs and had to take them one at a time. She thought it might have been the difficult winter weather. X-rays in March 2003, showed the cartilage to be diminished with connective tissue degeneration, and wear and tear due to aging. The MD had recommended quadriceps strengthening exercises (sitting leg lifts with weights) and to include Chondroitin with her Glucosamine. She agreed to try yoga asanas specific to her problem but wasn't sure that she could devote much time. A simple program was outlined.

On 4/21/03 we discussed utilizing a mono diet to relieve arthritis symptoms (it rests the digestive system). She was not receptive to this lifestyle change but decided she could make one day a week a "veggie day".

Ayurvedic intervention: She was having a great deal of pain on the April visit. Recommended using castor oil hot packs, an Ayurvedic remedy for painful joints. She did experience relief from the treatment.

Three months later, on 7/9/03, she reported feeling somewhat better, her pain not as acute. She gets pain on activity, noted it especially when in gomukhasana. She had been hampered in her exercise program due to medical problems, but there were improvements in her examination readings. Exactly two months later, after seriously following the recommended yoga program, she reported being pain free. We speculated that the glucosamine/chondroitin

combination would have had adequate time to repair some of the cartilage damage. The Ayurvedic understanding of repair of various tissues is that bone is nearly at the bottom of the list of the 6 tissues (dhatus), so to see any effect from herbal or medicinal intervention, one would have to carry out the treatment for a minimum of 4-6 weeks to see any improvement. Any improvement could be compromised by either poor digestion or metabolism or by a tissue higher up on the list requiring more of the nourishment, leaving little for those tissues at the bottom of the list such as bone.

Physical examination and muscle testing showed significant improvements in many of the readings and tests. Her scoliosis was reduced from 8 to 4 degrees (direct reading on scoliometer). Her SI was feeling more mobile, not moving down and would move upward after doing the SI series. Her leg length was normal. These were all impressive to me, but what surprised us both and impressed her most was her ability to come to a seated position in the straight leg abdominal test. As we started the test, she said “but I can’t do this”, but found herself fully seated upright. The look of delight on her face was followed with the recognition of the power of the process of healing through SYT. This is an example of “direct experience is the best teacher"!

B. Physical Examination

Dates		**3/20/02**		**9/9/03**	
		R shoulder up slightly and some forward torque, rt. hand slightly forward**,** palms face backward, s lordosis SI moves down on L Scoliosis – C curve to L from L2 to T2, peaks at 8 degrees on the scoliometer at T6.		R shoulder slightly higher, R buttock wider. In forward bend, L hip higher, R hand closer to floor. Standing: L hand slightly forward, palms back. SI test – neither side moved down and felt less tight. Both move up afte SI mobilization series. Her scoliosis had reduced to 4 degrees on the scoliometer at T6.	
Range of Motion		Left	Right	Left	Right
Supine position					
Knee	Flexion (150^0)	120	115	120	**108**
Hip	Flexion, bent knee (135^0-150^0)	112	122	**120**	**108**
	Straight knee (90^0)				
	External rotation (45^0)	35	37	**36**	**25**
	Internal rotation (35^0)	29	20	**25**	**35**
Side lying position					
Hip	Adduction (30^0)	28	35	**35**	**22**
Hip	Abduction (45^0)	34	30	**25**	**20**
Prone position					
Knee	Flexion (135^0-150^0)	106	106	**122**	**118**

Hip External rotation (45^0)	31 32	**34 35**
Internal rotation (35^0)	29 20	**37 35**
	MUSCLE TESTS	
Supine position		
Ankle All 4 movements		
Hip Flexion	5 3 felt in Rt. SI	5 **4-**
Psoas (isolation)	3+ 3 both sides felt in quads	**4** 3 Rt. side felt in abductors
Sartorius (isolation)	5 5	5 **4- Rt. side felt inner knee**
Flexors with abdominis rectus	Unable to do	**Able to do with legs straight**
Side lying position		
Hip External rotators	5 4-	5 4-
Internal rotators	5 4+	5 **5**
Abductors	5 3	5 **4+**
Adductors		
Prone position		
Knee Extension	Weak (raised thighs off table)	**5 5**
Flexion	5 4 Rt. side felt in Rt. SI	5 **5-** Rt. side felt in Rt. SI
Hip Extension		
Gluteus maximus isolation	Not done	**4 4**
External rotators	5 5	5 5
Internal rotators	5 5	5 4

C. Summary of Findings

3/20/02:

Stretch:	Strengthen:
R/L hamstrings	R/L quads
R/L ext. hip rotators	R/L psoas
R/L int. hip rotators	R Gluteus medius
R/L hip abductors	
R/L hip adductors	

Summary 9/9/03 :

Stretch:	Strengthen:
R/L ext. hip rotators	R/L psoas
R/L int. hip rotators	R Gluteus medius
R/L hip adductors	R/L Gluteus maximus

D - Dietary recommendations:

On 8/21/02 we discussed the need for sufficient water to assist in the repair of cartilage. She said she “Drinks a lot of water” but was unsure how much. I suggested to have a pitcher of water out for the day so she could be sure she was taking a sufficient quantity and to be sure it was at least 8-10 glasses a day.

2. a. Name and description of condition:

Osteoarthritis is a degenerative joint disease characterized by fissures and cracks in the articular (the end of bone meeting another bone at a joint) cartilage, sclerosis (hardening) of the subchondral bone (bone beneath the cartilage), and hypertrophy (enlargement) of the cartilage at the margin of the joint. When the cartilage becomes calcified and ossified (bone-like), it is observable on x-ray as an osteophyte (cartilage is otherwise not very visible on x-ray). There may also be synovial inflammation. Also observable on x-ray is loss of joint space and sclerosis of adjacent bone. There may be spur or node formation.

b. Gross and Subtle Body Common Symptoms:

Onset is gradual. Pain is chief complaint, most pronounced after exercise. Muscle spasm, joint effusion (fluid in the joint) and inflammation may occur. Symptoms are confined to the areas involved. The most frequent areas affected are those bearing weight or subject to repetitive motion. This includes the spine, the hands and fingers, the hips and knees.

c. Related challenges

Osteoarthritis affects one's mobility and participation in exercise, even exercise as simple as walking. Exercise is highly recommended to prevent deformity of the joint, but may be difficult to undertake due to pain. Dietary recommendations may offer a lifestyle change that client is unable/unwilling to make. Obesity greatly increases the strain on the affected joints and dieting to lose this weight presents its own challenges.

The therapy offered by allopathic medicine includes anti-inflammatory pharmaceuticals such as acetaminophen and non-steroidal anti-inflammatories (NSAIDs) that can lead to bleeding complications. In certain situations therapy might include adaptations such as canes and heel lifts to keep the weight off the joint and the body in alignment. When all else fails, joint replacement surgery is recommended. As with all surgery, there are risks and there is recuperation time that interferes with one's life plans and activities.

3. Ayurvedic Assessment and Ayurvedic-based Yoga Recommendations:

Osteoarthritis is chiefly a vata condition, occurring in later age (this is the vata time of life): the body experiences cold and dryness, especially in bones and joints. When there is dryness, cracking, and crepitis noted, these are signs of a vata imbalance. However, if the joint is inflamed, there is a pitta imbalance to the condition. If it is swollen and cool, it is kapha related.

Ayurveda sees osteoarthritis as stemming from doshic imbalances that lead to poor digestion. Any undigested food gets deposited in the tissues as ama (the literal meaning of this Sanskrit term is "not mother", "not nourishing). The buildup of ama leads to blockage of proper tissue metabolism and eventually to disease. Individuals vary as to the vulnerable tissues that could be affected by ama. For those with vata dosha predominance, nerves, bones and joints are likely candidates for deposition of ama. One may have another doshic predominance but be in a vata imbalance with the same resultant deposition of ama in the bones and joints.

The Ayurvedic treatment plan would be to correct the diet and lifestyle to rebalance the dosha. Included would be cleansing the body of the ama buildup through the use of herbal therapy and panchakarma cleansing therapies. Ayurveda recommends heat, steam and massage with herbalized oils such as Mahanarayan oil or mustard oil, and Yoga, including Kriyas, asana, pranayama and meditation. The specific recommendations would depend on the doshic imbalances noted at the consultation. In a pitta imbalance, for example, with joint inflammation, heat would not be used and spicy hot foods would be avoided.

4. Common Body Reading

Body reading: Due to pain and self-immobilization of the affected joint, one would expect to find some splinting of the joint with resultant muscle modifications. In the case of arthritic involvement of the hips and knees, this could include spinal curvature, problems with the sacroiliac joint, and leg length discrepancy.

Range of Motion: In the case of hip involvement, there would likely be loss of ROM in any of the multiple movements of the hip. This would be dependent on the extent of the pain. In the case of knee involvement, there would be restricted knee flexion. The restrictions would occur due to splinting, causing certain muscles to tighten up, others to overstretch, eventually creating spasm and pain.

Muscle Testing: One would expect to see weakness in many of the muscles surrounding the joint. Which muscles would depend on the severity and length of the disease and the location of the damage. For example, in a knee, which has formed spurs on the inner knee, the gracilis, the sartorius and the semitendinosis could be in pain as they all attach in that region and would test weak. If the osteoarthritis is mainly in one hip, this can throw off the pelvis resulting in muscle tightness/weakness on that side.

5. Contraindicated Yoga Practices

Avoid any asanas that could traumatize or increase weight bearing on the involved joints. For example, Adho Mukha Svanasana would be contraindicated in wrist involvement, Vrksasana would be contraindicated in hip and knee involvement, and Virasana in knee involvement. Power yoga, Ashtanga yoga, and other strong practices should be avoided unless the teacher is willing to work closely with the student to eliminate contraindicated poses or create modifications. Bikram yoga would likely be avoided even with modifications as there is likelihood of overdoing the work when the joint is warmed and is not revealing its present restricted nature.

6. General Recommendations – Progressive through three phases

a. Therapeutic - Free of Pain:

To free the client of pain, the Joint Freeing Series should be employed, encouraging gentle work, drawing attention to the breath, and making necessary modifications to the poses. If the client has a sacroiliac discrepancy, the series should be preceded by the SI Stabilization

exercises, checking to be sure that the desired effects are obtained. If the pain is severe, advise doing the Series 2-3 times per day until there is some relief. A review of the client's ADL (activities of daily living) may point out certain ones that need to be omitted or modified to keep from further aggravating the pain.

Evaluate their breathing habits. If they are untrained, begin by teaching them diaphragmatic/abdominal breathing which will help to balance and calm vata. The therapist can explore their "quiet time"; see if a spiritual/meditation practice is established in their life.

b. Stabilize Situation and Potential Lifestyle Change Recommendations:

Once the client is out of pain, then work is needed to strengthen and stretch the muscles that have undergone changes during the disease process. Strengthening the muscles surrounding the joint help to avoid further trauma and to avoid deformity. Appropriate stretching and strengthening helps to balance the muscles around the joint and around other joints that may have been affected by the adaptation of the body to splint the painful area. The JFS may be continued or replaced by specific muscle strengthening exercises.

Now is the appropriate time to recommend dietary changes to cleanse the body of ama and to lose excess poundage. The therapist needs to recommend the inclusion of appropriate exercises on a daily basis, and a review of the client's job requirements and ADL to see what modifications need to be made.
If the client has succeeded in changing their breathing to diaphragmatic/abdominal, they could now be taught intercostal breathing and ujjaye pranayama to enhance the power of their breath. Meditation practice can be explored and taught if the client is open. If not, teach them to set aside some quiet time for uplifting reading, writing or reflection.

c. Maintenance (of Underlying Issues at the Root of the Situation):

In Mary's case, Vata is the underlying cause of the osteoarthritis. Asana choices can be recommended according to client's dosha, including asanas that promote strength in the muscles, which had been compromised. At this point, may be able to eliminate some of the "single muscle" exercises. It would be important to include weight bearing to prevent osteoporosis (which becomes prevalent in the aging, Vata phase of life). The bones need to feel the action of the muscles on them to keep them active and healthy. Walking is excellent for vata dosha and vata imbalances. Pitta desires more competitive activities and might enjoy power walking, biking, or weight lifting that avoids extra stress on the involved joints. Kapha dosha has the ability to exercise strongly, but is not very motivated – would likely do best signing up for an exercise class but would have to choose this according to need to protect their joints.

If breathing exercises have proved fruitful and effective, the client could be taught pranayama such as nadi shodhana to assist in calming vata, relieving stress. If the client is more advanced, they could be instructed in Bhastrika and Agnisar dhouti to cleanse and promote the digestive fire, assisting in weight maintenance by improving digestion.

One should follow up on the client's dosha appropriate diet, including teaching them how to modify the diet according to seasonal changes, and how to include the six tastes. One should ideally move the main meal to noon, and avoid late night dining and snacks, cold, dry, stale food, and leftovers. Inclusion of healthy oils in the diet is very important for bone and joint maintenance: for Vata, unrefined sesame, sunflower or almond oil, for Pitta, sunflower, coconut or almond oil, for Kapha, mustard oil. These oils may be used both internally and externally. The supplements, Evening Primrose Oil and Flax seed oil are highly beneficial, antioxidants, and cartilage repairing supplements such as glucosamine and chondroitin or fundamental sulfur can assist good joint function.

Meditation is to be encouraged, explore beginning a sadhana practice including spiritual reading, asana and meditation.

7. Questions and Answers from Yoga Forums.com

There are 4 Q & A's on the Yoga Forums by Mukunda.

Question 1: posted on 9/23/03 on sacroiliac joint pain. The questioner had x-rays showing osteoarthritis of the sacroiliac. Recommendations were to focus on only strengthening muscles during asanas, avoiding all stretching. If this did not work, to use only the Joint Freeing Series for 2 weeks. Mukunda asked about stresses in questioner's life since this is a frequent cause of low back pain.

Question 2: presented on 4/24/02 about osteoarthritic pain in one hip, a sequela to trauma to that hip. Mukunda recommended the Joint Freeing Series to free prana plus a gentle hands-on healing technique called Contact Assist, by L. Ron Hubbard. He encouraged weight loss and the Indra Devi Diet.

Question 3: presented on 4/27/02 was about osteoarthritis in general. Mukunda gave the advice about JFS and the Indra Devi Diet. For long-term management, recommended a pitta-reducing diet.

Question 4: presented on 4/10/03, asked about the effectiveness of the Indra Devi Diet for osteoarthritis.

8. References:

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Available at: Web Fund Foundation Pvt. Ltd., 85, First Main Road, Adyar, Chennai – 600 020

Email: powerbiss@powerbiss.com

"Take Hold of Arthritis" by Pfizer for Women at www.pfizeforwomen.com

Buckwalter, Dr. Joseph A. "Osteoarthritis", WebMD, www.webmd.com

Arthritis Foundation "Osteoarthritis", www.arthritisfoundation.org

9. Appendix

Other notes on the case:

The beginning assessment showed a longer right leg. After reviewing the muscle testing, it was theorized that this leg length discrepancy might be due to the weak muscles in her right hip area – that they were not strong enough to keep the thigh "up". This appears to be born out by the end results that when she strengthened her muscles, her leg length corrected.

Mary enjoys yoga and is committed to her weekly yoga classes, but she still sees yoga exercise on her own as "boring" – mirroring her husband's assessment of exercise in general. She prefers a class setting with teacher led dialog to bring her inward. My goal in work with her is to help her feel the inner dynamics of yoga on her own. She is already committed to a spiritual practice from her years as a nun – spiritual reading is part of her every day.

On our last visit in January, we reviewed what each of the recommended poses does to help her maintain her correction and to maintain her enthusiasm for a daily yoga program. I encouraged her to pay attention to her body's cues and emphasized the inner work of experiencing the movements and the muscles being strengthened.