An Herbal Breakthrough in Rheumatology

Bull Thistle (*Cirsium vulgare*) for Spondyloarthropathy

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Abstract

Clinical work with a number of sufferers of spondyloarthropathy (including psoriatic arthritis, juvenile spondyloarthropathy, and the arthritis accompanying inflammatory bowel disease) appears to confirm a little-known, folk-medicinal tradition that *Cirsium vulgare* (bull thistle) supports the health of joints, tendons, and ligaments in a most remarkable way.

Definitions

Bull thistle (*Cirsium vulgare*; formerly *Cirsium lanceolatum*), alternately known as "spear thistle," is a biennial wild plant—often castigated as a "weed"—that grows in fields, meadows, pastures, and uncultivated land and usually in moist soil or not far from a body of water. In its first year, it appears as a basal rosette of easily-broken, bristly, irregularly-indented leaves, in which form it survives and even grows under the winter snows. By early summer of the second year, a branching stem appears, shooting the plant up to the height of a man. In this manifestation, it bears spiny-winged stems, spiny and alternate stem leaves, and reddish-purple flower heads situated on spiny bracts at the tips of the stem branches.

Seronegative arthropathies are inflammatory joint diseases lacking the presence of rheumatoid factor in the blood, thus distinguishing them from rheumatoid arthritis (RA). Most of these are classified as *spondyloarthropathies* (SpA), a constellation of diseases in which there is marked inflammation at the point where tendons and ligaments insert into bones—a condition known as *enthesitis*—as well as an associated inflammation elsewhere in the body and a family tendency for this type of pathology. (Enthesitis, it should be noted, is one marked feature differentiating spondyloarthropathies from other progressive joint diseases.) The spondyloarthropathies include *psoriatic arthritis* (PA), *reactive arthritis* (ReA; inclusive of *Reiter's syndrome), enteropathic arthritis* (EA), (the arthritis occurring in connection with inflammatory bowel disease), *ankylosing spondylitis* (AS), and undifferentiated *spondyloarthropathy* (uSpA).

Factors contributing to the onset and perpetuation of the spondyloarthropathies have not been conclusively elucidated, although current scientific research postulates that these afflictions may arise from ongoing immune activation against an infection, perhaps even one that has become dormant in some way. (Berthelot et al 2013). In this scenario, the antigen(s), originally located in the gut, is (are) transported to the joints by monocytes/macrophages (Fantini et al 2009, Peluso et al 2013), where autoreactive T cells (esp. CD8+) and TNF-alpha invoke the inflammation (Marker-Hermann & Schwab 2000, Costello et al 1999, Gonzalez et al 2012, Hermann et al 1994). Some researchers have more

Bull thistle (*Cirsium vulgare*). Photo by Franco Folini CC BY-SA 2.0 via Wikimedia Commons

specifically proposed that secretory antibodies produced against the invading bacteria in the gut transfer to the joint spaces where they proceed to bind to tissues exhibiting cross-reactive self-antigens, thereafter initiating damage to tissues by recruiting inflammatory cells and/or by activating the complement system (Rashid & Ebringer 2012). One mechanism allowing any sort of migration would seem to be intestinal permeability ("leaky gut") (Martinez-Gonzalez 1994).

As to evidence for the bacterial-induced autoimmune hypothesis, researchers have discovered antibodies against various pathogenic, and usually enteric, bacteria in PA sufferers (and even, in at least one case, the discovery of the DNA of several of these genera in the *synovial fluid* of these sufferers), including *Klebsiella, Yersinia, Salmonella, Campylobacter, Chlamydia,* and *Mycoplasma* (Lapadula et al 1992, Lapadula et al 1988, Gilroy et al 2001, Johnson et al 2000, Schaeverbeke et al 1996, Gerard et al 2001). The DNA of *Klebsiella* and of several other bacteria has been discovered in the joints of ReA sufferers (Gerard et al 2001, Johnson et al 2000), while antibodies to *Yersinia* spp. have also been found in these victims, as well as in those afflicted with AS (Wakefield et al 1989, Lapadula et al 1988). Also in AS victims, *Mycoplasma* has been found in their synovial fluid (Johnson et al 2000), whereas the bacteria *Klebsiella pneumoniae*—antibodies to which are marked in these sufferers (Rashid & Ebringer 2012, Ebringer & Wilson 1996)—has been shown to cross-react with the MHC-class 1 molecule HLA-B27 (Rashid & Ebringer 2012). This association was even tested clinically, when a hospital in London put AS sufferers on a low-starch diet designed to minimize *Klebsiella* in the bowel, which resulted in a reduction of total serum IgA and a marked decrease in both inflammation and symptoms (Ebringer & Wilson 1996). Conversely, studies such as those cited above have consistently not found bacteria in the synovial fluid of sufferers of osteoarthritis (OA) (Johnson et al 2000, Wilbrink et al 1998, Schaeverbeke et al 1996).

Historical Data Relative to Bull Thistle (*Cirsium vulgare*)

Native Americans have long treasured bull thistle as a food source. The Nlaka'pamux (Thompson) Indians, as one example, cooked and ate the fresh, peeled roots and also dried and stored them for later use. When needed, these were rehydrated, scraped, chopped, and cooked into stews (Turner et al 1990). Wilderness survival teacher Tom Brown, Jr., describes his Apache plant medicine mentor, Stalking Wolf, teaching

him how to peel and to eat the juicy leafstalks as a rich source of water and how to peel and to eat the roots in late fall and early winter as a satisfying survival food (Brown 1985).

From the mid-20th century onward, bull thistle also figures prominently in the edible-wild-plant literature usually associated with Euell Gibbons, where both its stem and its fleshy taproot are said to be edible and delicious once peeled and cooked in two waters. (Warnings are given in this same literature about the need to exercise great caution when harvesting the second-year plant, as when cutting or stripping material from it the springy stem can easily thrust spines into an eye, causing permanent corneal damage!) I have eaten both the boiled taproot and the peeled leafstalk since the mid-1980s, especially enjoying the latter's celery-like taste.

Native Americans also used bull thistle to heal a variety of afflictions. The Iroquois used it for bleeding piles and in an unspecified way for cancer (Herrick 1995). The Cherokees treated neuralgia with an infusion of the leaves and bruised the plant to poultice a sore jaw (Hamel & Chiltoskey 1975). The Delaware implemented the whole plant as a steam treatment for rheumatism. (Tantaquidgeon 1942, Tantaquidgeon 1972). Native American healer Tis Mal Crow, who lived for awhile in my own state of Minnesota and who acquired quite a reputation here for being a talented and a colorful herbalist, devoted an entry to bull thistle in his informative book *Native Plants, Native Healing* (2001), wherein he remarked that the plant is used in his (Muskogee) tradition as an alterative, as a febrifuge, topically as a vulnerary, and swished in the mouth as a healing bath for stomatitis (Tis Mal Crow 2001). Crow further related his amazement when he consulted books by white herbalists and could not locate entries or information for bull thistle therein, but could only find information about the plant in the wild-foods literature.

One has to search tediously, indeed, to find any traces of this herb in the Western herbal materia medica, although there is evidence of its use as an antiphlogistic among some herbal healers in the late 1800s and early 1900s (Nickell 1895). In 1974, a woman named Elaine Chamberlin Muhr recounted her experience as a 10-year-old girl in the early 1920s, burdened with what was then diagnosed as juvenile rheumatoid arthritis. This was so pronounced that she could not arise from a reclined position without the help of her father. One day, however, her mother was entertaining a "little woman" who lived in the mountains about 10 miles away. Upon seeing young Elaine lying down and crying out in pain, the woman asked Elaine's mother what caused her such misery, and was told that the girl had rheumatoid arthritis. At that, the woman—perhaps a folk herbalist—responded: "Mrs. Chamberlin, just go out and cut one of the big bull thistles that grow so big along the creek, cut it up and make a tea out of it and have your daughter drink half a cup three times per day." Elaine relates that her mother did just as she was encouraged: She prepared a cup of the tea and gave it to her that very evening, following this up with one-half cup the following morning. To her great delight, Elaine found that she was able to get up unaided at noon on that second day of treatment "and never had a bad spell since," although she adds that her mother directed her to drink the tea "for several days" more (Muhr 1974).

Muhr's account impressed me greatly when I first came across it a number of years ago. I tried to contact her to get more details, but discovered that she had died in 1997. Later in my herbal practice, however, when I came to a standstill in my healing efforts with several individuals afflicted with severe, progressively deteriorating arthropathies, Elaine's story would come back to haunt me and I would try implementing this herb in the hopes that it would make the profound difference I was so doggedly seeking.

Preparation and Dosage

To my knowledge, bull thistle is not available on the herb market, necessitating that it be wildcrafted. This is best done by steeping the plant's fresh leaves in enough 100-proof vodka to cover for two to three weeks. Here the collection of basal leaves from the rosette provides a greater amount of fleshy material in a shorter amount of time than does the gathering of stem leaves from the second-year plant. The dosage I have

found most effective for bull thistle is 6-10 drops of this tincture per 20 pounds of body weight per day, spread among 2-3 doses per day.

Clinical Data and Observations

Case #1

In 2006, a 52-year-old, 145-pound woman came to see me complaining chiefly of pain in the joints of her hands, wrists, and ankles. She had a recent, but only tentative, diagnosis of rheumatoid arthritis from her physician, whose laboratory analysis had revealed a rheumatoid factor level of 97 IU/ml (normal being 0-20). She also had an elevated serum IgM of 342 mg/dL (normal being 60-265). Her ESR (erythrocyte sedimentation rate), RNP (ribonucleoprotein) antibody, Smith antibody, Sjogren's antibody, and scleroderma antibody were all within normal parameters. She was quite discouraged in that the onset of this disease process had forced her to quit her outdoor career and to transition into a different, and less satisfying, line of work.

I encouraged her to use a tincture consisting of 20% *Actaea racemosa* (black cohosh), 20% *Xanthoxylum americanum* (prickly ash), 20% *Salix alba* (white willow), and 40% *Cirsium vulgare* (bull thistle) that I had prepared, at a dosage of 15 drops, t.i.d. At her follow-up visit three and a half weeks later, she reported an 80 percent reduction of pain and stiffness in her joints, which she says began to occur after only a few days of having implemented the herbal formula. At this point, I switched the tincture formula to a simple of bull thistle, directing that it be used at 15 drops, b.i.d. One month later, at her second follow-up, the improvement was still holding and new labs were urged. She also reported on this visit that she was feeling so much better that she had resumed her outdoor career, which involved a lot of work with her hands, wrists, hips, and knees. Because of that vocational adjustment, however, she wound up moving out of the area and was lost to follow-up. Therefore, I have no additional labs or follow-up reports to flesh out this patient's case. However, the apparent success of the treatment in her case sparked my desire to implement the use of bull thistle in subsequent cases, of which several are discussed below. Unlike the previously mentioned case, these cases all involved an extensive clinical work on my part with each person, as well as a careful review and assessment by orthodox medical practitioners confirming the results.

Cases #2, 3, & 4

In the Spring 2014 issue of *Medical Herbalism*, I provided a detailed clinical report on three persons afflicted with a form of spondyloarthropathy who were successfully treated with a tincture of bull thistle in my clinic, to which report I refer the reader (Alfs 2014). To summarize the relevant data, however, these involved a 45-year-old, 205-pound man with psoriatic arthritis, a 12-year-old, 100-pound boy with juvenile spondyloarthropathy, and a 51-year-old, 160-pound woman with psoriatic arthritis. The man had been using etanercept (Enbrel®) bi-weekly, one low-dose naltrexone at night, and six ibuprofen during the day. I advised him to use 60 drops of bull thistle, b.i.d, initially, and 80 drops, b.i.d., after a number of weeks. The boy had been using naproxen, sulfasalazine, and was on the verge of having to receive regular cortisone injections in his joints; for him, I recommended 15 drops of bull thistle, b.i.d. The woman was alternately using etanercept (Enbrel®) and infliximab (Remicade®), as well as prednisone (the latter prescription primarily, however, for her asthma), and for her the assigned strategy was bull thistle at 40 drops, b.i.d.

Symptom relief and structural improvement were rapid in all three instances, were confirmed by orthodox medical doctors, and reached the point where all three persons were able to systematically discontinue the pharmaceuticals they were taking for their respective spondyloarthropathies and eventually even their bull thistle—remaining symptom-free afterward.

Case #5

In February of 2013, a 41-year-old, 180-pound man with Crohn's disease did his intake with me, complaining of cramping, weight loss, and associated joint pain in his low back and pelvis that was diagnosed as enteropathic arthritis. On the advice of his physician, he was taking sulfasalazine at a dose of 2 pills, b.i.d. and was

receiving a natalizumab (Tysabri®) infusion once a month. I advised him to start with a fish oil softgel, b.i.d., a probiotic, Vitamin D at 5,000 IU/day, and 300 mg *Boswellia serrata*, t.i.d. I further recommended a gluten-free diet.

He followed up with me one month later, at which time I learned that his compliance with the supplements and my dietary suggestion was outstanding. He explained to me at this time that his intestinal discomforts (cramping and diarrhea) had improved to such a great degree soon after having started my protocol suggestions that he decided to quit his sulfasalazine and to give the natural plan a chance. In harmony with his improved sense of well-being, a series of labs run just a week before his follow-up revealed that his inflammatory markers had improved somewhat: His CRP (C-reactive protein) had dropped from 1.5 to 0.6 and his ESR had dropped from 5 to 4.

At that same follow-up meeting he wanted to address his associated joint pain, which was so severe that he could not walk, but only crawl, up stairs. He also experienced great difficulty and discomfort in putting on his pants and shoes. I recommended that he start a tincture of bull thistle at a dosage and frequency of 40 drops, b.i.d.

A month later, in early April, he explained that his joint pain had vanished. He could now saunter up the stairs and put on his pants and shoes without any discomfort. By his next follow-up in mid-May, his joints were still in great shape and he was "feeling fantastic." Moreover, new labs of his inflammatory markers were back, showing even further improvement: His CRP was now down to <0.5 and his ESR to only 2. At this point, I graduated him from scheduled appointments and allowed him to re-visit as needed (PRN). Over the next two months, he continued his assigned protocol, but because his joints had not bothered him in such a long time, he discontinued the bull thistle. Meanwhile, he referred quite a few people to our clinic.

In early 2014, we caught up by phone and he related that his Crohn's seemed to be in remission and there was no pain at all in his joints. By late spring, he was able to powerwalk 13.1 miles!

Discussion

In view of the evidence from the Muhr historical report and the modern clinical cases reviewed above, there would seem to be sufficient evidence to warrant the use of bull thistle as a natural treatment for spondyloarthropathies. What is it about this plant that is capable of bringing about the sort of dramatic healing as recounted above?

One effect I can postulate is that bull thistle serves as a powerful anti-inflammatory, even as some of the Native American applications summarized above would suggest. Various chemical analyses of this plant have been done and these have indeed yielded verified anti-inflammatory phytochemicals such as sterols/triterpenes and flavonoids (Jordon-Thaden & Louda 2003, Nazaruk et al 2008, Nazaruk & Szoka 2009). Still, it is hard to imagine a mere anti-inflammatory that appears to *heal* serious arthropathies in a matter of several weeks to several months (or in less than a week, as in Muhr's historical account as related above).

Could it be, then, that something in this herb is able to destroy microorganisms responsible for the perpetuation of the arthropathies, per the information presented above on a probable connection between arthropathies and microorganisms? Indeed, scientific studies have shown bull thistle to exert marked *antibacterial* effects (Borawska et al 2010, Izzo 1995, Nazaruk et al 2008). If this is actually the case, then one might expect a particular chemical compound, or ratio of several chemical compounds, unique to this plant to be responsible. As one example of such uniqueness, bull thistle was the only thistle species of many tested to contain a flavonoid known as genkwanin-4'O-glucoside (Jordon-Thaden & Louda, 2003). A moderating argument here, however, is that a number of antibiotics have been tested in spondyloarthropathy sufferers and generally have been found *not* to affect the course of the disease (Inman 2006). A counterpoint may be that certain microorganisms respond only to a particular antibiotic and not to others and that not all antibiotics have been tested against the spondyloarthropathies. Still another possibility is that bull thistle is somehow activating, or perhaps even marking or identifying

in some way, a dormant bacteria to make it susceptible to elimination by the immune system.

If bull thistle is not either directly eliminating an occult or dormant microorganism or activating the immune system to somehow vanquish such, it is difficult to fathom the perpetuated recovery of joint-tendon-ligament health as documented in the clinical and historical cases related above. Also, I have not been successful in implementing this plant to nullify osteoarthritis, connected with joint overuse and resultant inflammation and not with microorganisms of any kind. Nor has bull thistle made any pronounced difference in two sufferers of confirmed adult-onset rheumatoid arthritis with whom I worked. (Note that the diagnosis of RA in Case #1, above, was only tentative and that in the historical report involving Elaine Chamberlin Muhr in the 1920s, juvenile rheumatoid arthritis was the only diagnosis possible, since SpA was not diagnostically differentiated from the former as a distinct pathology until the 1960s.) Moreover, old joint damage has not been reversed in any of my SpA sufferers, further suggesting that we are not dealing with something that simply restores joint integrity but, rather, an agent that may actually affect the disease progress.

There is yet another aspect to consider in this regard: Very recently, one of the first SpA patients with whom I worked—a middle-aged woman who had joint-tendon pain throughout her arms, hands, spine, hips, knees, and ankles—achieved such remarkable results after just a few months of treatment with bull thistle that she quit this therapy without consulting me, even though some pain remained in one of her ankles. (Typically, I don't allow patients to discontinue treatment until all areas of pain have been resolved for two to three months and "flare-ups" have been long gone.) Five months later—and only by then, incidentally— pain began to occur progressively in her joints and tendons until it began to encompass a number of areas previously affected.

At this point, she revisited with me and we started the bull thistle treatment again, at the dose and frequency that she had implemented previously. Immediately, however, Jarisch-Herxheimer reactions began to occur. These reactions, named after Drs. Adolf Jarisch and Karl Herxheimer, have been defined as reactions that occur when microorganisms are being so rapidly destroyed by an antimicrobial treatment that the release of endotoxins causes "die-off" manifestations to occur (Pound & May 2005, Fekade et al 1996). In this woman's case, it was a rapid intensification of her musculoskeletal pain, along with fever and mild hypotension, which trio even laid her up for a couple of days. After her die-off manifestations had entirely subsided, we decided to re-start the bull thistle tincture again, but at a dose of only one drop for the first day, thereafter increasing the dosage by only 1-2 drops a day, so as to sidestep any more Jarisch-Herxheimer reactions. She is now back to three-fourths of her original dosage and progressively regaining the results she had experienced before she prematurely discontinued the bull thistle and is almost to the point of progress she had achieved before quitting the herb. My point, however, is this: Jarisch-Herxheimer reactions occur only when microorganisms are being killed. As a side note: In view of this case revealing the potential for intense Jarisch-Herxheimer reactions to occur, which could discourage the patient to such a point that treatment might be unilaterally discontinued, I now gradually work up to the ideal dose given at the beginning of this paper.

Conclusion

I believe that the historical and observational reports of bull thistle to evidently heal persons afflicted with arthropathies as recounted above mark the first time in the scientific—or even popular—literature (aside from my earlier article in *Medical Herbalism*, referred to above) that such an application has been clinically documented. However, further research—including randomized and blinded clinical trials and an effort to positively identify the manner in which the plant exerts its effects—should be done to confirm the clinical observations and the theorized avenues of activity as detailed above. Then, too, clinical trials measuring the effectiveness of bull thistle against drugs such as sulfasalazine, etanercept (Enbrel®), infliximab (Remicade®), and methotrexate should certainly be implemented.

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