TREATING ARTHRITIS - THE NEW NATURAL WAY

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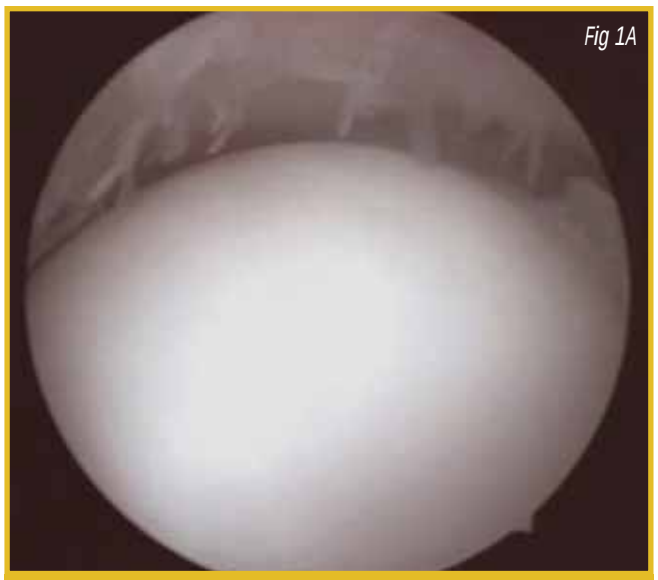
Lameness resulting from osteoarthritis is one of the most prevalent diseases affecting the racing industry. Alarmingly, the early stages of osteoarthritis may affect horses as young as two and three years old. Osteoarthritis involves inflammation of the joint lining and progressive destruction of articular cartilage. The progressive cartilage destruction decreases the natural shock absorbing function and range of motion of the joint, ultimately resulting in lameness. Joint cartilage destruction is caused by a number of substances which increase when inflammation occurs in the joint. Laboratory and clinical research has shown that one of the main substances responsible for cartilage destruction is interleukin 1 (IL-1). A multitude of research has also shown that antibodies produced against this cartilage destructive substance (IL-1) have a beneficial effect in arresting cartilage damage (Figure 1).

Traditional treatments for osteoarthritis include reduced training intensity, icing, bandaging, anti-inflammatory agents, anti-arthritic drugs such as pentosan polysulphate, artificial joint fluid such as hyaluronic acid and corticosteroids. For many years these treatments have and continue to improve the condition of horse's joints and subsequently help maintain soundness of horses in training. Despite this, current treatments have limitations in their effectiveness and some are associated with side effects.

Recently a treatment technique has been developed in Europe which is targeted specifically at the cartilage destructive IL-1 cytokine which causes osteoarthritis. The treatment process uses autologous conditioned serum (ACS) which contains antibodies produced by the horses' own blood which are produced to block the cartilage destructive action of substances such as IL-1.

The process of creating ACS involves taking blood from the particular horse requiring treatment for osteoarthritis in a special syringe system (ORTHOKIN) (Figure 2). This blood filled syringe is then incubated for 24 hours which results in extremely high levels of the naturally occurring antibody against IL-1 (interleukin-1 receptor antagonist protein–IRAP) being produced. After 24 hours antibody levels have been shown to increase up to 140 fold in the serum of the blood. The syringe is then spun in a centrifuge to separate the red blood cells from the serum to allow harvesting of the serum component of blood in a syringe (Figure 3). A portion of the antibody-rich serum is injected into the osteoarthritic joint that day and the remaining serum is stored in a freezer for further treatments. Typically 3 treatments are required for optimum clinical effect whilst the horse remains in training or is rested.



Normal fetlock cartilage

Arthritic wear lines occurring in fetlock cartilage

Treatment of osteoarthritic joints with autologous conditioned serum has been used in people since 1998, and has been used to treat more than 3,000 horses with osteoarthritis to date.

A recent research project involving horses with experimentally induced arthritis in the USA evaluated the usefulness of this treatment for the management of osteoarthritis. It was

found that autologous conditioned serum (ACS) or IRAP improved lameness and reduced the arthritic disease process within the joint lining and articular cartilage. In support of this research, clinical experience in horses with lameness resulting from osteoarthritis indicates that this new joint therapy has been effective in reducing lameness and arresting the signs and progression of arthritis. For this reason the treatment is receiving widespread use in North America, as well as Europe and more recently in Australia.

The ability to use the horses' own blood to combat the signs of arthritis (pain, inflammation and reduced joint range of motion) has many advantages. A principal advantage is that the mechanism of action of this treatment is that it addresses the very cause of arthritis, at the cartilage and joint lining level. This is different from more traditional treatments, such as corticosteroids, which rely on suppressing the signs of inflammation associated with osteoarthritis. A further advantage of this therapy is that there are no reported side effects.

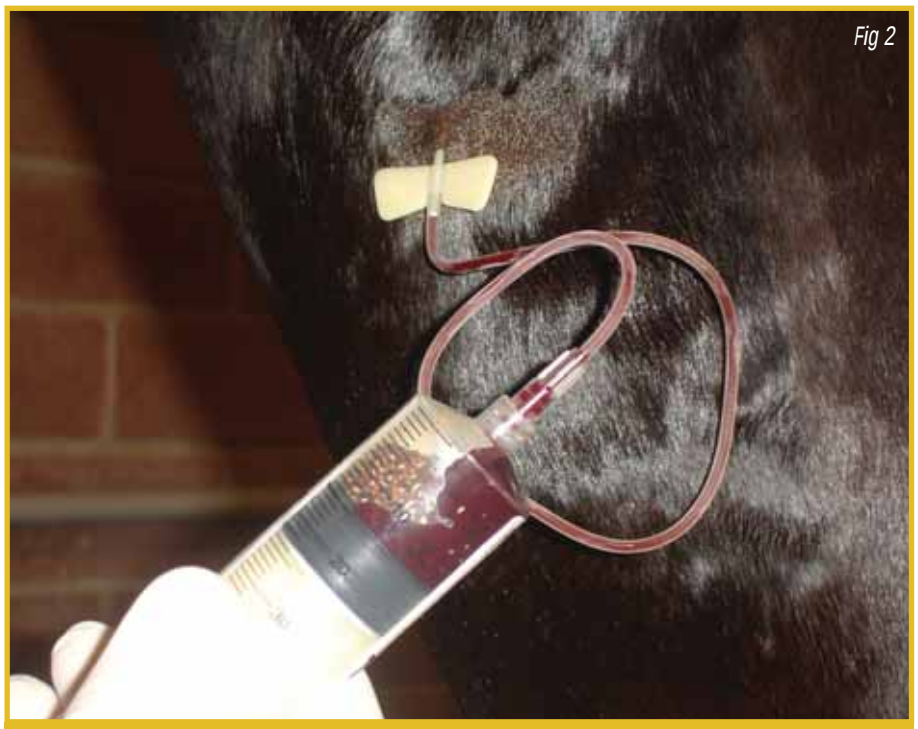


Fig 2

Blood collection

At present, optimum candidates for this new and exciting therapy appear to be horses with early signs of arthritis which are devoid of a specific underlying cause such as a chip fragment or cartilage-bone development abnormality. It is hoped that by treating such horses with this new individual specific therapy that we stand a greater chance of maintaining a healthy pain free joint for horses throughout their athletic career. R

Fig 3A

Aspirating IRAP-rich serum

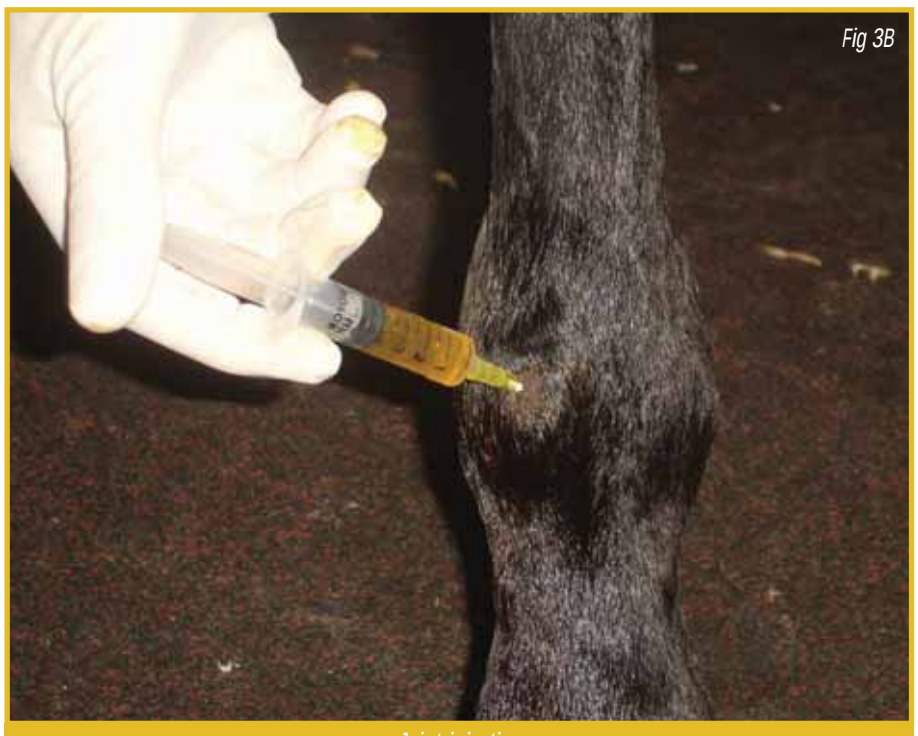


Fig 3B

Joint injection