adrenal grand, ileum (fig 1), and ascending colon. Several stages of vasculitis existed, which was a typical finding of classic PAN. We failed to detect vasculitis affecting arterioles, venules, or capillaries. Duodenal bleeding was from peptic ulcers, which is not associated with arteritis.

A few reports have described TTP complicating certain forms of rheumatic diseases, including systemic lupus erythematosus and systemic sclerosis.[1 2] To our knowledge there are no reports published in English of PAN complicated by TTP.

The necropsy finding was classic PAN because vasculitis affected vessels larger than arterioles and there were no pathological findings of glomerulonephritis.[3] We failed to detect vasculitis affecting arterioles, venules, or capillaries. MPO-ANCA is usually a marker of microscopic polyarteritis or necrotising glomerulonephritis but does not distinguish it from classic PAN with certainty.[4]

Our case suggests the possibility of secondary TTP due to PAN. We speculate that endothelium damage by PAN may enhance the development of TTP, particularly in the presence of inflammatory processes. Our patient unfortunately died from massive bleeding from a duodenal ulcer. However, conventional treatment for TTP, including plasma infusion and plasma exchange, were effective in this case, too.[5] Our case emphasises the need to consider TTP when thrombocytopenia occurs with vascular disease, because early and correct treatment of TTP may improve morbidity and mortality in these patients.

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Placement of intra-articular injections verified by ultrasonography and injected air as contrast medium

Intra-articular injection of long acting corticosteroid is a corner stone in rheumatological treatment. The injected intra-articular corticoid is more effective when correctly placed.[1 2] Injection of radiographic contrast material has shown that fewer than half of the injections are correctly placed in the joint space after blind injection.[1]

Generally, the clinical application of ultrasonographic examinations can be enhanced by contrast agents.[3] The most commonly used technique is creation of microbubble contrast agents. Such agents, applied to the bloodstream, have been used for hepatic, nephrologic, cardiologic, and transcranial examinations.[4] Obviously, the risk of air embolism depends on the anatomical site of the injected air contrast. Transient ischaemic attacks are described after echocardiography with air contrast[5] and in animal models haemodynamic effects during venous air infusion can be measured.[6] Intra-articular injection of air and subsequent lateral and posterior radiographs have shown that this technique can enhance the precision of the procedure.[7] The disadvantage of this method is that the result can first be seen after the injection, and that a correction can only be made with a new injection. In the joint space the air is separated from the vascular system and when only small amounts of sterile air are used the risk of venous air embolism is negligible. Air is a very effective contrast medium in ultrasonography. Air sonography has been used for the diagnosis of meniscus lesions in knee joints[8] and for rotator cuff lesions in the shoulder[9].

We expand the applicability of this method to all joints, not only for diagnosis, but also for the correct placement of the needle before injection of medicine (steroid, osmium acid, viscosupplementation). The sterile air that is contained in the capped vial with lidocain or steroid is used as contrast medium. The needle is guided into the joint space of the distended capsule by ultrasonography.

When the steroid and lidocain are mixed in the syringe a small volume of air will be in the needle itself (~0.05 ml). The air in the needle is clearly seen when the injection is started and will secure the correct placement of the needle. With this technique, it is not necessary to use two separate syringes and the inclination of the syringe will not cause the air to move from the needle to the bottom of the syringe.

If the knee is injected, injection directly into the recess of the knee is recommended, which will make the small volume of air momentarily visible.

Figure 1 illustrates the ultrasonography of a metatarsophalangeal joint in a patient before and after injected air. The intra-articular air is clearly seen. We have made over 1000 ultrasonography guided intra-articular injections without any complications. This method is easy, inexpensive, without risk and radiation, and should be used routinely in rheumatology. Chemical synovectomy of the knee, especially, should always be guided by ultrasonography, and with this technique smaller joins can also be considered for chemical synovectomy.

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HLA class II alleles and synovial fluid cytology in RA

Rheumatoid arthritis (RA) is associated with HLA-DR4, which is encoded by the DRB1 gene. This genetic predisposition has been shown to lie within the sequence motif present in the third hypervariable region of the DRB1 gene.[1] This sequence of amino acids has been called the "disease epitope" and can be encoded by DR4 subtypes as well as non-DR4 alleles; DR1 subtypes, DR10 and DR14 subtypes .[1] Hence, it is also termed the shared epitope. In addition to imparting susceptibility to RA, HLA-DR4 has also been shown to be associated with the severity of the rheumatoid disease, including destructive erosive joint disease, rheumatoid factor positivity,[2] and extra-articular manifestations, such as rheumatoid nodules, vasculitis, and Felty's syndrome.[3 4] HLA-DQ genes are in linkage disequilibrium with HLA-DR and subjects who are DR4 positive may either be DQB1*0301 or *0302 positive; certain extra-articular features of RA have been shown to be associated with HLA-DQB1*0301.[4 5]

Synovial fluid cytology in RA is heterogeneous both with respect to total white cell