

BILATERAL STAGE III OSTEONECROSIS OF THE FEMORAL HEAD TREATED WITH CORE DECOMPRESSION CASE REPORT AND REVIEW OF THE LITERATURE

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A case report of a 17-year-old girl with Ficat stage III osteonecrosis of the femoral head, secondary to treatment with corticosteroids for Crohn's disease, is presented. Core decompression, mainly performed because of the intense pain, traction and long-term partial weight bearing led to a good result, clinically as well as radiologically.

Keywords : osteonecrosis of femoral head ; core decompression ; Ficat classification.

Mots-clés : ostéonécrose aseptique de la hanche ; forage ; classification de Ficat.

CASE REPORT

In October 1986 a 17-year-old girl presented with very disabling pain in both hips on weight bearing. She had pain at night.

In April 1986 she had received treatment with corticosteroids for Crohn's disease. Clinically she had restricted range of motion of both hips, especially adduction and internal rotation. Trendelenburg's sign was positive.

Plain radiographs, tomograms (fig. 1) and CT-scan demonstrated bilateral osteonecrosis of the femoral head, Ficat stage III (3). Both femoral heads had a crescent sign ; a slight impression of the right femoral head was visible only on CT-scan. MRI scan demonstrated an effusion of the hip joint and marrow edema in the femoral head. The patient was treated with bilateral core decompression using a 9.0-mm drill ; three smaller drill holes were made adjacently with a 3.2-mm drill. Histologic examination confirmed the diagnosis.

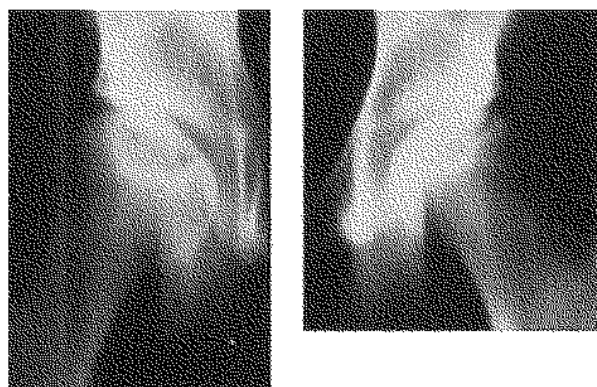


Fig. 1a and 1b. — Tomograms showing bilateral crescent sign. Stage III.

Postoperatively the patient had immediate relief from her pain. She was in balanced traction for three months, with mobilization allowed. This was followed by a period of five months of partial weight bearing with crutches. Serial radiographs and CT-scans demonstrated reossification with no signs of collapse.

The patient was evaluated 6 1/2 years after the operation. She was completely pain free and very happy with the outcome. She had no problems doing her job, which involved standing all day, nor did she have problems with sports. She had a good range of motion. Trendelenburg's sign was negative.

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Tomograms showed preservation of the contour of both femoral heads without signs of degeneration and without a crescent sign. Plain radiographs showed mottling of the right femoral head, which means partial regression to stage II (fig. 2).

MRI demonstrated subchondral sclerosis. There was no marrow edema and no joint effusion. This not only indicates resolution of the necrosis but also proves healing of the necrotic area.

DISCUSSION

This favorable result, clinically as well as radiologically, after decompression of both femoral heads for stage III osteonecrosis, is rather exceptional. Learmonth *et al.* (2) noted radiological improvement in only 7% of 29 stage II cases; radiological improvement of a stage III lesion was not found in the literature. This patient was at even further risk due to recurrent corticosteroid usage for her Crohn's disease, the minor dysplasia of both hips (incomplete covering of both femoral heads) and a later pregnancy.

According to the literature, decompression should be used for Ficat stage I and II lesions. For stages III and IV decompression is considered only for symptomatic pain relief, as in this case.

The results obtained with core decompression are extremely variable. The clinical results range from 42% (2) to 94% (1) "improved or unchanged" in stage I lesions, and from 24% (2) to 94% (1) "improved or unchanged" in stage II lesions. The radiological results range from 25% (2) to 74% (1) "improved or unchanged" in stage I lesions, and from 14% (2) to 74% (1) "improved or unchanged" in stage II lesions.

A prospective randomized study was reported by Stulberg (4). Surgical treatment was successful according to the Harris Hip Score in 7 out of 10 hips with stage I disease, 5 out of 7 hips with stage II and 8 out of 11 hips with stage III lesions. Conservative treatment, however, was successful in only 1 of 5, 0 of 7, and 1 of 10 patients with respectively stage I, II and III lesions. This pleads for the fact that, in the present case, traction and partial weight bearing played only a minor role.

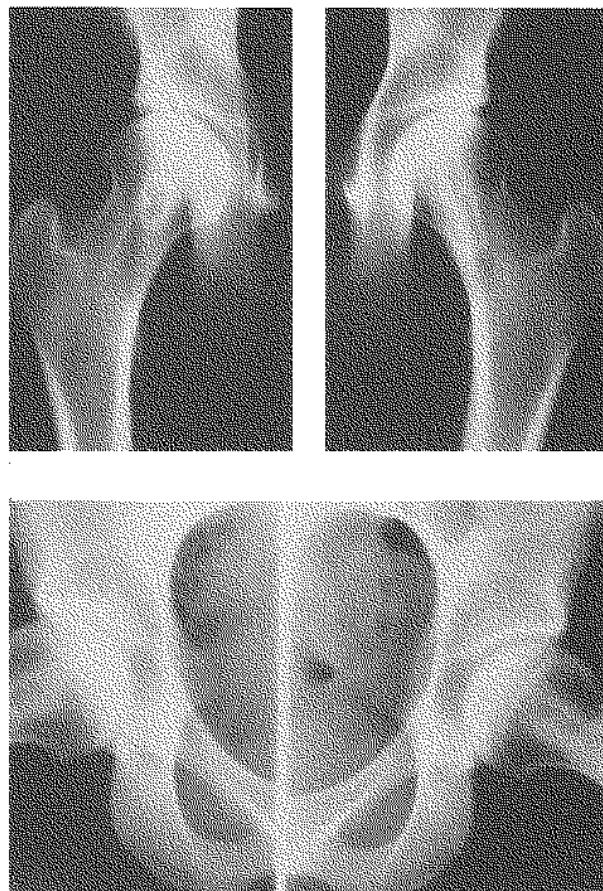


Fig. 2. --- Tomograms showing partial regression to stage II.

A review of the literature indicates that the result of core decompression is unpredictable. Despite the variable results for stage III we decided to proceed to core decompression in this patient because of the severe disability and pain, the relative simplicity and safety of the procedure, the young age, the minimal impression of the femoral heads, the fact that it would not interfere with any subsequent reconstructive procedure and the absence of any good alternative. The possible complication was a 5% chance of a fracture through the femoral neck, but the latter could be avoided by strict nonweight bearing after surgery.

We still do not understand enough about the natural history of avascular necrosis. Recently some authors for example drew attention to the fact that the location of the necrotic area in the femoral head can influence the course of the disease (5, 6). A better understanding of the natural

history of different patterns of osteonecrosis may be helpful in selecting the most appropriate treatment for each patient.

CONCLUSION

Treatment of osteonecrosis of the femoral head, especially in younger patients, remains a challenge. There is no golden rule to follow. The stage III lesion presented here was decompressed mainly because of the unbearable pain, in spite of the poor prognosis indicated by the literature. The clinical and roentgenological result, however, was unexpectedly good.

The importance of early detection of the disease has to be stressed. Here MRI has proved to be most valuable. We actually know only one thing for sure: "The earlier in the course of the disease a core decompression is performed, the more chance there is to obtain a good result".

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SAMENVATTING

J. MALCORPS, M. EEKHAUT, P. DIERCKXSENS. Bilaterale avasculaire heupnecrose stadium III behandeld met 'core decompression'. Klinisch geval. Literatuuroverzicht.

Een casus van bilaterale avasculaire heupnecrose stadium III volgens Ficat bij een meisje van 17 jaar wordt voorgesteld.

'Core decompression', tractie en langdurig ontlasten leidden tot een gunstig resultaat, 6,5 jaar later.

Een literatuuroverzicht en een theoretische beschouwing over diagnose, classificatie en therapie worden gegeven.

RÉSUMÉ

J. MALCORPS, M. EEKHAUT, P. DIERCKXSENS. Ostéonécrose avasculaire bilatérale stade III des têtes fémorales, traitée par forage. Présentation du cas et revue de la littérature.

Les auteurs rapportent le cas d'une jeune fille de 17 ans qui présentait une ostéonécrose avasculaire des deux têtes fémorales au stade III de Ficat, d'origine cortisonique. Un forage cervico-céphalique et une mise en traction postopératoire de trois mois suivie d'une décharge partielle pendant cinq mois ont donné un bon résultat. A la lumière de ce cas, les auteurs se livrent à quelques réflexions sur le diagnostic, la classification et le traitement de cette lésion.