CHONDROSARCOMA OF THE DISTAL PHALANX OF A TOE A CASE REPORT

Y. P. KOAK, P. S. PATIL, R. P. MACKENNY

Secondary malignant transformation of a solitary enchondroma into a chondrosarcoma is extremely rare. We report a case of such transformation in an enchondroma of the distal phalanx of a toe.

Keywords : toe ; distal phalanx ; tumour ; chondrosarcoma ; enchondroma.
Mots-clés : orteil ; phalange ; tumeur ; chondrosarcome ; enchondrome.

CASE REPORT

A 33-year-old female nurse presented with a one-year history of a painful enlargment of the left third toe and toenail. She had sustained an injury to that toe 13 years previously when the medicine trolley ran over the toe. Since then she had had residual swelling of the distal part of the toe and toenail.

On examination she was fit and healthy. The left third toe had a drumstick appearance to it. The nail was grossly enlarged, and the toe itself was enlarged. A radiograph showed an expanding lytic lesion with a fracture (fig. 1). This was thought to be a benign lesion, possibly an enchondroma. Partial amputation of her left third toe was performed, with preservation of the pulp. She made an uneventful postoperative recovery. Histological examination showed a moderately cellular cartilaginous tumor which was expanding the phalanx, and in some areas eroding the overlying cortex. There was significant pleomorphism, and numerous binucleate cells were present, indicating active growth. There was permeation and erosion of the preexisting bone with complete loss of the overlying cortex in at least two areas. In the other areas there was active woven bone formation as a response to endosteal erosions. These features indicated a low-grade (Grade 1) chondrosarcoma (fig. 2). The excision was complete.

DISCUSSION

Since Schreiner and Wehl's description in 1933 of the chondrosarcoma of the foot, only a few cases of chondrosarcoma of the toes have been report-

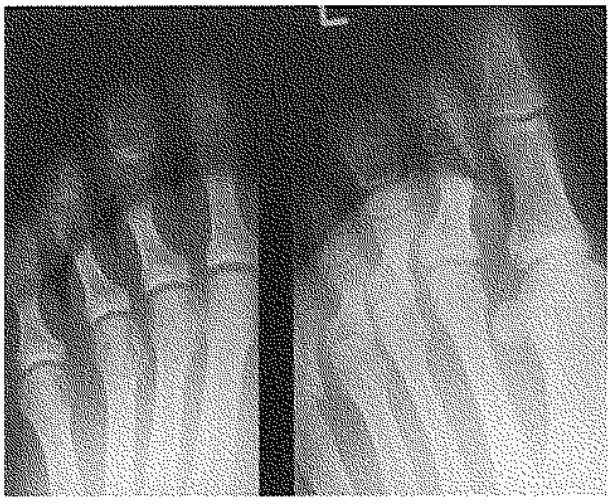

Fig. 1. — Xray of the foot.

Department of Orthopedic Surgery, Watford General Hospital, Vicarage Road, Watford, Herts, United Kingdom.
Correspondence and reprints : Y. P. Koak, 25 Sherborne Avenue, Norwood Green, Middx., United Kingdom.

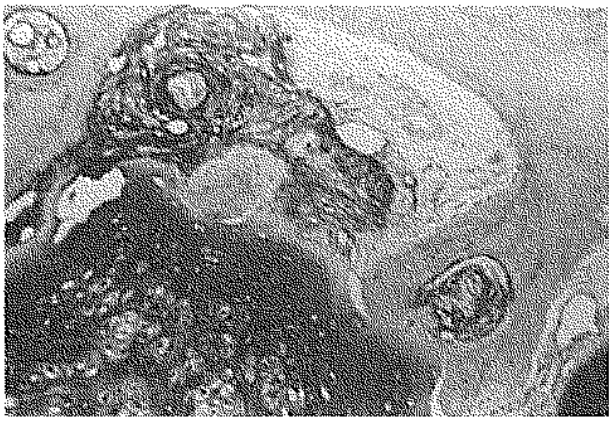

Fig. 2. — Chondrosarcoma.

ed (1, 5, 6). A solitary enchondroma or residual cartilaginous fracture callus following trauma, of many years duration, which eventually undergoes malignant transformation appears to give rise to the chondrosarcoma (3). Our case lends support to this idea that trauma many years previously may be a precipitating factor for chondrosarcomas. Initially it was thought that all chondrosarcomas arose secondarily to enchondroma (4), but the high frequency of enchondroma and the rarity of the chondrosarcoma of the foot suggest that enchondromas rarely undergo malignant change (5). The propensity for a malignant change per unit volume of enchondroma in the long bone might be the same as it is in a short phalangeal bone and may not be related in any way to an inherent difference in the aberrant cartilage of the bones of the hands or the feet *per se* as compared to other bones. However, owing to the lesser volume of the enchondroma there is a lower incidence of chondrosarcoma developing.

Secondary chondrosarcoma represents only about 10% of malignant chondrogenic tumors and commonly occurs in younger patients than the primary chondrosarcoma. Secondary chondrosarcomas most commonly arise in multiple and solitary osteochondromas, multiple chondromas (Ollier's disease), and Maffucci syndrome (2). Peripheral enchondromas of the hand and the feet may be considered as benign, even when the histomorphological study reveals pleomorphic features with atypical nuclei (3). On occasions it may be impossible to differentiate cellular enchondromas from chondrosarcoma, histologically. However pain, rapid expansion, invasion, recurrence and the radiological appearance of activity suggest a sarcomatous evolution of the enchondroma (2). Most chondromas grow slowly and metastasise late. Local recurrence though rare (1 in 40), may occur up to 10 years after the initial resection (1). Ten-year survival is reported as 33.3 % for the chondrosarcoma of the extremity (5). However complete excision of the low-grade chondrosarcoma in the extremity should effect complete cure. Treatment is surgical, consisting of amputation of the extremity or wide local en block resection with defined clear margins. Curettage, bone grafting and use of methylmethacrylate cement has also been advocated (1).

REFERENCES

1. Bauer H. C. F., Brosjo O., Kreichergs A., Lindholm J. Low risk of recurrence of enchondroma and low-grade chondrosarcoma in extremeties. Acta Orthop. Scand., 1996, 66, 283-288.
2. Dahlin D. C., Salvadoe A. H. Chondrosarcoma of bones of hands and feet : A study of 30 cases. Cancer, 1974, 755-760.
3. Dohler R., Heinemann G., Buscanny-Caspari W., Farrar M. D. Chondrosarcoma of the first metatarsal : Primary or secondary to enchondroma ? Arch. Orthop. Trauma Surg., 1979, 95, 221-225.
4. Lichtenstein K. Bone tumours. C.V. Mosby St., Louis, 1977, pp. 30-46.
5. Patcher M. R., Alpert M. Chondrosarcoma of the foot skeleton. J. Bone Joint Surg., 1964, 46-A : 601-607.
6. Schreiner B. F., Wehl W. H. Primary malignant tumours of the foot. A report of 37 cases. Radiology, 1933, 21, 513-521.

SAMENVATTING

Y. P. KOAK, P. S. PATIL, R. P. MACKENNY. Chondrosarcoma van de eindphalanx van de grote teen.

De maligne ontaarding van een solitair enchondroom naar chondrosarcoom is bijzonder zeldzaam. De auteurs beschrijven zo'n casus.

RÉSUMÉ

Y. P. KOAK, P. S. PATIL, R. P. MACKENNY. Chondrosarcome au niveau de la phalange distale d'un orteil : présentation d'un cas.

La transformation maligne secondaire d'un enchondrome solitaire en chondrosarcome est extrêmement rare. Les auteurs rapportent un tel cas au niveau d'un enchondrome de la phalange distale d'un orteil.