procedure of the profession. More positively, this offers help to patients who may be abused by practitioners, including unlicensed psychotherapists and practitioners of alternative medicine, who may not be bound by codes of practice or internal disciplinary procedures.

Once cases do come to light there should be help and compensation for the victim. Patients should be treated outside the setting in which the original abuse occurred. Victims should be allowed to ventilate feelings about their experience, which will include a complex mixture of anger, guilt, and sadness. The therapist should not attempt to shield professional colleagues from normal disciplinary procedures. In this context it is important for doctors, both individually and as a profession, publicly to take a clear stance on this matter so that patients can be sure that their complaints are taken seriously and dealt with effectively.

Management of the offender should combine a compassionate regard for their special needs, including counselling or psychiatric treatment, with implementation of the appropriate disciplinary measures. Deliberate misconduct demands strict censure and supervision of future clinical practice. This should reinforce public confidence, act as a deterrent to the exploitive offender, and encourage the sick to seek help.

The cornerstone of prevention of sexual contact between doctors and patients is education. Discussion of the subject could be appropriately included in undergraduate psychiatry and medical ethics courses. Doctors should also be able to discuss these issues with their supervisors or peers without fear of ridicule or persecution.

Clinicians can take steps to make it less likely that they will be drawn into an erotic relationship.[6] Such steps will also reduce the risk of false accusations, which can be extremely damaging. Those working in hospital can most readily protect themselves by using chaperones when seeing patients and minimising social contact with patients. Setting limits on patient contact such as seeing patients only in the clinic, at appointed times, and with chaperones are impractical for those who have to offer emergency treatment at the patient's request. Furthermore, the recommendation that all social contact with patients should be avoided as it could be a precursor to frankly unethical activity is unrealistic for some practitioners. In such situations it is important to have a close working relationship with other health professionals. If a doctor becomes aware of professional boundaries being eroded then this should be discussed with colleagues, and possibly the care of the patient transferred to another clinician.

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Living bone grafts

Cell culture may overcome the limitations of allografts

Bone grafting is widely used in orthopaedics and maxillofacial surgery.[1] Currently the ideal graft material is autologous cancellous bone, usually taken from the iliac crest, which provides living osteoblasts and may provide mechanical support. Its use, however, is hindered by morbidity at the donor site, which includes postoperative pain, infection, wound scarring, anaesthesia of the buttock, herniation of muscle, meralgia paraesthetica, subluxation of the hip, and prolongation of the hospital stay.[2-4] Furthermore, the volume required often exceeds what is available, especially in children.

To overcome these difficulties alternative forms of graft material have been sought. These fall into two broad groups: bone preparations—both human and animal, mineralised and demineralised—and bioceramics, which are mainly composed of a combination of tricalcium phosphate and hydroxyapatite. Bioceramics include marine coral, which is currently being investigated.[5]

Human allografts provide mechanical strength but do not contain living osteoblasts; their use carries the risk of infection, although sterilisation should largely eliminate this. Fresh allografts provoke a vigorous inflammatory response and often rejection of the graft,[1] although immunogenicity can be reduced by demineralising and freezing "treatments" of the material. Re-establishment of the blood flow, which is a vital step in incorporating a graft, is thought to be impaired in allogeneic grafts, and this inhibits the rate of formation of new bone and resorption of the graft.[6]

Demineralising allograft bone, as well as reducing immunogenicity, may expose a group of matrix growth factors known as the bone morphogenetic proteins. These cause the formation of bone in soft tissues by stimulating primitive mesenchymal cells to differentiate into osteoblasts —a process known as osteoinduction.[7] Demineralised bone is therefore superior to untreated allograft because it has intrinsic bone forming ability, although it may have reduced mechanical strength.[8]

Recently, recombinant bone morphogenetic protein-2 has been shown to heal large segmental bone defects in dogs, but more extensive work, including studies in humans, is required.[9] Using bone marrow aspirates to enhance both bioceramics and bone allografts has been another approach,[10] which has so far met with only limited success. Bioceramics

composed of a combination of hydroxyapatite and tricalcium phosphate have been used in graft procedures on their own.

These materials provide limited mechanical strength and have no inherent bone forming ability. The use of bioceramics is dogged by the problem of variable resorption, which may inhibit rather than promote the ingrowth of bone.[11] Freshly harvested autologous bone graft remains the material most likely to lead to healing of defects.[12] The ideal substitute would have the advantage of mechanical strength combined with bone forming capacity through the presence of living osteoblasts and bone morphogenetic proteins. One possible approach would be to use cultured autologous osteoblasts to enhance the osteogenic potential of demineralised bone grafts.[13]

Graft expansion by cell culture has already been described in the treatment of burns.[14] Autologous epithelial cells were cultured for periods of up to three weeks and then grafted on to areas of skin loss. A 10 000 fold increase in available graft material was produced, and 60-80% of the cultured grafts were successful. The four week delay before autologous keratinocytes become available from culture and the move towards earlier grafting in burns has led to the development of culture of allogeneic fibroblasts and keratinocytes.[15] In elective orthopaedic and maxillofacial surgery the delay for culture of autologous osteoblasts before grafting would not be the decisive factor. In addition, this delay would allow confirmation of the osteoblast phenotype,[16] which is necessary to exclude contamination by other cell types, usually fibroblasts.

Culturing autologous human osteoblasts on demineralised donor bone may ultimately offer a means of graft enhancement. A small cancellous bone fragment could be harvested percutaneously[7] under local anaesthesia about four weeks before elective surgery. Osteoblasts obtained in this way could be massively expanded in numbers and cultured on demineralised bone fragments. The result would be a "living" bone graft, which could then be used as needed in definitive surgery, avoiding the problems of harvesting grafts.

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Investigating lower bowel symptoms in general practice

GPs could do more sigmoidoscopies

Gastrointestinal problems account for one in 12 consultations in general practice, with lower bowel symptoms accounting for about half of these.[1] Apart from abdominal emergencies these symptoms include chronic, recurrent abdominal pain; changes in bowel habit; and rectal bleeding. Although self limiting minor conditions account for most of these symptoms, colorectal cancer and inflammatory bowel disease will be responsible for a few. A further large group will, of course, be due to the irritable bowel syndrome.

In this issue Rubin reports that nearly three in four practices in the Northern region possess a proctoscope but only 4% undertake rigid sigmoidoscopy (p 1542).[2] Almost half of doctors surveyed thought that proctoscopy and sigmoidoscopy were not appropriate procedures for primary care and that standards might be difficult to maintain. Yet timely investigation of patients with lower bowel problems is important. Rectal bleeding is common, occurring in up to one in six of the general population each year,[3] and may be the only sign of serious large bowel disease. Colorectal cancer is the second commonest cancer in the United Kingdom, accounting for more than 16 000 deaths annually. Survival depends on the stage of disease at diagnosis, and early detection offers the only opportunity to improve survival.

Recognised risk factors for colorectal cancer include a personal history of colorectal neoplasia and inflammatory bowel disease and a family history of colorectal cancer or of one of various inherited disorders that are associated with colorectal cancer. These include familial adenomatous polyposis, site specific cancer of the colon, and the cancer family syndrome (in which colorectal cancer is associated with adenocarcinoma of the breast and genital tract).[4]

To evaluate rectal bleeding anorectal inspection and digital rectal examination are mandatory, although these are not always performed properly.[5,6] Patients with rectal bleeding are at low risk of colorectal cancer if they are under 40 and do not have significant personal or family histories. A local anorectal lesion in these patients is a sufficient cause for their bleeding, which may be treated without further investigation. Older patients, those with personal or family histories, and those with recurrent symptoms should be investigated.

Nearly half of all general practitioners have open access to barium enema examinations, and most radiology departments require sigmoidoscopy before contrast radiology. Only a few general practitioners have access to flexible sigmoidoscopy and colonoscopy.[7] About 70% of rectal cancers (15% of all colorectal malignancies) can be detected by digital rectal