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Bone infections have long been a challenge for orthopaedic surgeons. In chronic form they disappoint the surgeon and his patient as well. Despite the remarkable advances in modern medicine, eradication of bone infections becomes a tedious task even today. Bone infections, once established, constantly drain the patient, society and the nation. Nevertheless, advent of newer methods of therapy and advances in the field of microbiology make them yield to treatment, though temporarily. The final answer is yet to be procured.

Various methods used to treat the bone infections from time to time range from simple rest, local application of ointments, irritants or antibiotics and filling the wounds with sponges to local perfusion-suction technique and other operative procedures.

Antibiotics administered systemically require high serum concentrations for prolonged period, which are not free from adverse reactions or toxic effects of their own. Despite of this, in certain cases, the effective concentration at diseased site is not achieved because of certain factors such as sclerosis around the lesion, relatively avascular and thick peristemeum and development of resistant organisms,
Locally applied antibiotics have a shorter duration of action and their application is usually not possible in the absence of an open wound.

Surgical procedures have often failed to be fruitful because the continuity of bone is lost, persistent cavity or dead space in the bone leading to local collection of pus is present and complete removal of seared and dead tissue is often not possible. Thus the offending organism can not be totally obliterated from the lesion. Besides, every surgical procedure carries its own risks and limitations.

Use of hyperbaric oxygen came as a new method of treatment with a bang, but was valued only as an adjunct measure alongside other forms of treatment. However, it is costlier and the chambers are available only at a few medical centres in the world.

The idea of irrigating infected bone with antibiotic or detergent solutions is gaining popularity nowadays. But numerous complications such as leaking and plugging of tubes and secondary infections have harmed its reputation considerably. Besides, although it prolongs the postoperative hospital stay, its end results are still not entirely satisfactory.
In view of the above facts a meticulous agent, free from these limitations and disadvantages, continues to be a big necessity. During the search for such material, the idea of impregnation of antibiotic with bone cement clicked to the minds of Buchholz and his colleagues who were disappointed with postoperative infections occurring after total hip replacement. In literature the antibiotic impregnated bone cement has been described with the following advantages:

(i) Set cement is porous and antibiotic incorporated in it diffuses locally.

(ii) Local concentration of diffused antibiotic is effective against the organisms for a prolonged period.

(iii) Level of absorbed antibiotic in the body circulation is free from adverse or toxic manifestations.

(iv) The diffused antibiotic is in direct contact with the offending organisms.

(v) Wound can be closed after its insertion.

(vi) It is easily available.

(vii) Hospital stay is much reduced.

(viii) Operation does not require much skill or instrumentation.

(ix) Antibiotic to which organisms are sensitive can easily be mixed with bone cement.
Considering all these facts, it was decided to evaluate the role of antibiotic impregnated bone cement experimentally to know its effectiveness in the prevention and treatment of bone infections.

Albino rats were selected for this study because of the following advantages:
(a) They are readily available in sufficient number.
(b) The animal is benign and suitable for experimentation.
(c) They are quite resistant to environmental conditions.
(d) These are relatively cheap.

Staphylococcus aureus, being the commonest causative organism for human bone infections, was chosen to produce pyogenic bone infection experimentally by operating the tibias of these animals. This was followed by use of plain or antibiotic impregnated bone cement bead in different groups of animals. The role of antibiotic impregnated bone cement was thereby evaluated, comparing the results in these groups.