single photon emission tomography. *Am J Physiol Imag* 1987; 2:176–180.

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Bone SPECT Evaluation of Patients with Persistent Back Pain Following Lumbar Spinal Fusion

TO THE EDITOR: A recent article by Lusins et al. (*1*) discussed the usefulness of single photon emission computed tomography (SPECT) when evaluating patients with the "failed back syndrome". Their patient population included those with laminectomy alone and in combination with spinal fusion. Although their observation that the role of lumbar spine scintigraphy has been limited, they neglected to comment on the results of the recent study by Slizofski et al. (*2*) which specifically addressed the issue of pseudoarthrosis, continued low back pain and scintigraphic appearances of both planar and SPECT examinations in postfusion patients.

That study demonstrated a reasonably high sensitivity and specificity (0.78 and 0.83) of bone scanning for determining if the pain is actually related to a pesudoarthrosis. The incidence of a pseudoarthrosis as the apparent cause for pain was higher than that found by Lusins (9 of 15 vs. 2 of 6); and increased activity at articular facet joints adjacent to the fusion mass, suggesting a cause for pain, was observed less frequently (2 of 15 vs. 4 of 6). These differences may be entirely related to the small sample size or variation in localization terminology by the authors. Whatever the reason, the paper by Lusins et al. does add a further dimension to the often frustrating problem encountered in these patients by depicting the involvement of the articular facets at levels adjacent to the fusion mass as further potential sources of pain.

I believe that both articles offer evidence for the usefulness of SPECT bone scanning in the screening of patients who continue to have pain after spinal surgery.

References

1. Lusins JO, Danielski EF, Goldsmith SJ. Bone SPECT in patients with persistent back pain after lumbar spine surgery. *J Nucl Med* 1989; 30:490–496.
2. Slizofski WJ, Collier BD, Flatley TJ, Carrera GF, Hellman RS, Isitman AT. Painful pseudarthrosis following lumbar spinal fusion: detection by combined SPECT and planar bone scintigraphy. *Skel Radiol* 1987; 16:136–141.

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REPLY: Our paper deals with a spectrum of patients who have had spinal surgery for pain and included in the series were those patients who had only one level laminectomy and progressed to include patients who had multilevel laminectomy, as well as multilevel laminectomy and fusion. In our series the number of individuals who had fusion were only six, and obviously this is too small a number to derive any statistical significance as to the type of abnormality these patients had experienced. Slizofski et al. deals with a total of 15. I do believe that the value of both papers is not in comparing rather low level statistics, but rather in the fact that both papers point out the significant advantage of using single photon emission computed tomography scanning to gain insight into the failed back syndrome. Based on these early observations, larger series can be developed and are being developed by us, and hopefully others, regarding the specific types of failures that occur with lumbar surgery, including those of pseudoarthrosis and fusion.

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Correction: Beta Dose Point Kernels for Radionuclides of Potential Use in Radioimmunotherapy

In the article by William V. Prestwich, Josane Nunes, and Cheuk S. Kwok "Beta Dose Point Kernels for Radionuclides of Potential Use in Radioimmunotherapy," (*J Nucl Med* 1989;30:1036–1046) an error was made in calculating the data of Table 2. The corrected data is presented here. All other results presented remain as in the original manuscript. The authors would like to thank Douglas J. Simpkin of St. Luke's Medical Centre, Milwaukee for bringing this to their attention.

TABLE 2
Scaled Beta Dose Point Kernels

Scaled distance	^{32}P	^{67}Cu	^{90}Y	^{131}I	^{186}Re	^{188}Re
0.00	0.2632E+01	0.9349E+01	0.2575E+01	0.1006E+02	0.4873E+01	0.3064E+01
0.04	0.2651E+01	0.5343E+01	0.2447E+01	0.5550E+01	0.3603E+01	0.2822E+01
0.08	0.2627E+01	0.4131E+01	0.2395E+01	0.4246E+01	0.3209E+01	0.2732E+01
0.12	0.2537E+01	0.3202E+01	0.2308E+01	0.3278E+01	0.2854E+01	0.2593E+01
0.16	0.2401E+01	0.2453E+01	0.2198E+01	0.2509E+01	0.2510E+01	0.2421E+01
0.20	0.2229E+01	0.1842E+01	0.2071E+01	0.1878E+01	0.2178E+01	0.2222E+01
0.24	0.2031E+01	0.1352E+01	0.1928E+01	0.1359E+01	0.1859E+01	0.2004E+01
0.28	0.1815E+01	0.9702E+00	0.1772E+01	0.9416E+00	0.1559E+01	0.1772E+01

(continued)

TABLE 2 (*continued*)
Scaled Beta Dose Point Kernels

Scaled distance	^{32}P	^{67}Cu	^{90}Y	^{131}I	^{186}Re	^{188}Re
0.32	0.1589E+01	0.6821E+00	0.1605E+01	0.6189E+00	0.1283E+01	0.1536E+01
0.36	0.1358E+01	0.4716E+00	0.1430E+01	0.3816E+00	0.1033E+01	0.1301E+01
0.40	0.1133E+01	0.3228E+00	0.1247E+01	0.2182E+00	0.8112E+00	0.1075E+01
0.44	0.9190E+00	0.2194E+00	0.1062E+01	0.1138E+00	0.6208E+00	0.8647E+00
0.48	0.7234E+00	0.1481E+00	0.8799E+00	0.5324E−01	0.4611E+00	0.6748E+00
0.52	0.5508E+00	0.9874E−01	0.7070E+00	0.2202E−01	0.3318E+00	0.5093E+00
0.56	0.4040E+00	0.6437E−01	0.5477E+00	0.8116E−02	0.2301E+00	0.3702E+00
0.60	0.2841E+00	0.4068E−01	0.4071E+00	0.2896E−02	0.1531E+00	0.2577E+00
0.64	0.1899E+00	0.2476E−01	0.2878E+00	0.1200E−02	0.9712E−01	0.1706E+00
0.68	0.1197E+00	0.1441E−01	0.1921E+00	0.6209E−03	0.5830E−01	0.1064E+00
0.72	0.7051E−01	0.7934E−02	0.1197E+00	0.3453E−03	0.3277E−01	0.6204E−01
0.76	0.3831E−01	0.4071E−02	0.6883E−01	0.1825E−03	0.1706E−01	0.3343E−01
0.80	0.1890E−01	0.1908E−02	0.3611E−01	0.8831E−04	0.8080E−02	0.1642E−01
0.84	0.8294E−02	0.8004E−03	0.1693E−01	0.3798E−04	0.3405E−02	0.7218E−02
0.88	0.3142E−02	0.2930E−03	0.6920E−02	0.1413E−04	0.1240E−02	0.2774E−02
0.92	0.9890E−03	0.9193E−04	0.2404E−02	0.4415E−05	0.3750E−03	0.9081E−03
0.96	0.2488E−03	0.2441E−04	0.6902E−03	0.1138E−05	0.8873E−04	0.2481E−03
1.00	0.5364E−04	0.5700E−05	0.1658E−03	0.2475E−06	0.1696E−04	0.5898E−04

* For convenience, the standard E format is used in this and following tables. The form aEn is to be interpreted as $a \cdot 10^n$.