Microchip adverse reactions

Simon Surf is, who runs the BSAVA Microchip Adverse Reactions Scheme, reports its findings to date.

IN September 1997, the BSAVA, in conjunction with FECAVA, launched a scheme to record and collate information on adverse reactions to microchips, including migration, infection, failure to work, or loss from the body.

Reactions rates

Between September 1997 and September 1999, a total of 61 reports were received; 49 from the UK, and the remainder from other European countries (Denmark 7, Belgium 4 and Sweden 1). At September 1999, the total number of dogs and cats registered on the UK database operated by Petlog was 973,585. This represents a reported reaction rate of one per 19,869 microchips implanted.

The manufacturer was not specified in four of the cases. From the remaining data, it was possible to calculate a reaction rate for each manufacturer from the number of animals implanted with each type of chip. This provided the following rates:

- Animalcare (Identichip): 1/69,202 implantations;
- Avid (Permac): 1/9789 implantations;
- Bayer (Tracer): 1/8616 implantations.

The time taken for a reaction to develop varied from immediately (loss of the chip) to three years, with most reactions occurring within the first 12 months. Of those specified:

- 0 to six weeks 10
- Six weeks to 12 months 31
- Over 12 months 12

Animals and types of reaction

Fifty-six dogs and three cats had reactions. Interestingly, 46 of the dogs were pedigree animals, with 'active' breeds over-represented.

Causes of the adverse reactions were as follows (where specified):

- Abscess 3
- Failure 4
- Loss 1
- Migration 47

The most common sites for migration were the shoulder, elbow and sternum.

Conclusion

This report confirms the BSAVA's position statement that microchipping represents a safe and reliable method of pet identification. There appears to be some variability between the manufacturers, with Avid's and Bayer's chips more prone to migration. This is in agreement with other European data. To minimise the risk of an adverse reaction, it is important to follow the manufacturer's instructions and implant the microchip deep to the skin between the shoulder blades. With the advent of the Pet Travel Scheme, it is particularly important to follow these guidelines.

The report form does not identify the person implanting the chip, so it is not possible to tell if microchips implanted by veterinary surgeons are more or less likely to migrate. In the rest of Europe, only veterinarians are allowed to implant microchips and they use the left side of the neck. In addition, in this study, the site of implantation could not be analysed as a risk factor for migration.

Veterinary surgeons are urged to check the microchips of pets that have been implanted, at least annually. Any adverse reactions should be reported to the BSAVA using the relevant form, as well as to the manufacturer.
Keeping track of microchip adverse reactions

In 1997, the BSAVA, in conjunction with FECAVA, launched a scheme to record and collate information on adverse reactions to microchips in companion animals. Simon Swift, who runs the BSAVA microchip adverse reactions scheme, reports on the data collected for 2001, and compares this with the data from previous years.

Compared with previous years, there was a significant decrease in the number of reports of adverse reactions received by the BSAVA in 2001, despite the continued increase in the number of microchips implanted (Table 1). A total of 19 reports were received in 2001. These were submitted from the UK (18) and Denmark (1).

It is difficult to explain why this decrease in submitted reports has occurred. It is very important that practitioners check dogs and cats that have been implanted when they come in for routine visits, such as for vaccinations. In addition, it is recommended that practices keep an International Standards Organisation (ISO) FDX-B and Federation of European Companion Animal Veterinary Associations (FECAVA) FDX-A microchip (old and new style) so that scanners can be checked regularly. Vets should contact their usual supplier for samples of FDX-A and FDX-B microchips.

Animals and types of reaction

In 2001, adverse reactions to microchips were experienced by 17 dogs and in two reports the species was not identified. This is in keeping with previous years, when dogs have consistently shown a higher number of reactions than cats.

The numbers and types of reactions reported were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Migration</th>
<th>Infection</th>
<th>Failure</th>
<th>Swelling</th>
<th>Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>33</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>53</td>
</tr>
<tr>
<td>2001</td>
<td>9</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

The most common sites for migration in 2001 were the shoulder and elbow. This was also the case in 2000, but the sternum was also featured in reports. This was not the case in 2001 but the numbers were much smaller.

Although the numbers of reactions reported for each manufacturer’s chip are known, it has not been possible to calculate the relative risk associated with each, as several of the companies have been reluctant to divulge the total number of chips they have sold.

Reaction times

The time taken for a reaction to develop varied (loss of chip) from four months to 18 months (Table 2). Most reactions reported in 2001 occurred between three and 12 months after implantation. This contrasts with data from both 2000, when most reactions occurred between one and six months after implantation, and from 1999, when most occurred six months after implantation. Again, the low numbers may have affected the figures.

Conclusions

This report confirms the BSAVA’s position statement that microchipping represents a safe and reliable form of companion animal identification. Migration remains the most common problem, with the elbow and shoulder being the favourite locations of wayward chips. It is difficult to distinguish between loss from the body and failure of the chip if radiographs have not been taken. Unfortunately, not every case of loss was radiographed.

There is a need for common sense when reporting adverse reactions. Microchips that fall out immediately after implantation have probably not been implanted correctly, rather than having failed. It is important that the implantation is properly trained in how to perform the procedure correctly. Manufacturers are very helpful and their advice should be sought and followed.

Microchip implantation during surgery, while the animal is lying in lateral or dorsal recumbency, should be avoided. Finally, it should be remembered that, while any trained person can implant microchips in dogs and cats, only veterinary surgeons can do so in other species.

Reporting of adverse reactions

Veterinary surgeons are urged to check the microchips of pets that have been implanted at least annually. Any adverse reactions should be reported to the BSAVA using the relevant form, as well as to the microchip’s manufacturer.

<table>
<thead>
<tr>
<th>Table 2: Time taken for a reaction to occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
</tr>
<tr>
<td>0-1 month</td>
</tr>
<tr>
<td>1-6 months</td>
</tr>
<tr>
<td>6-12 months</td>
</tr>
<tr>
<td>1-2 years</td>
</tr>
<tr>
<td>2-3 years</td>
</tr>
<tr>
<td>3-4 years</td>
</tr>
<tr>
<td>4+ years</td>
</tr>
</tbody>
</table>