

TISSUE REACTIONS TO MICROCHIP IMPLANTATION IN LABORATORY ANIMALS AND PETS.

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FOREIGN BODY TUMORIGENESIS IN PEOPLE AND PETS

- ⇒ **WHEN FOREIGN MATERIAL CAN BE ASSOCIATED AS A POTENTIAL CAUSE OF A TUMOR (CANCER, NEOPLASIA)**
 - ⇒ **INJECTION SITE SARCOMA**
 - ⇒ **BONE PLATES**
 - ⇒ **PACEMAKER IMPLANTS**
 - ⇒ **OTHER**

FOREIGN BODY TUMORIGENESIS IN CATS

- TRAUMA TO EYE (PARTICULARLY WITH LENS RUPTURE)
- INJECTION SITE SARCOMAS
- OTHER?

Verification



Sarcomas have been associated with many materials not just vaccinations

- Depomedrol
- Lufenuron
- Long acting Penicillins
- Suture material
- Other

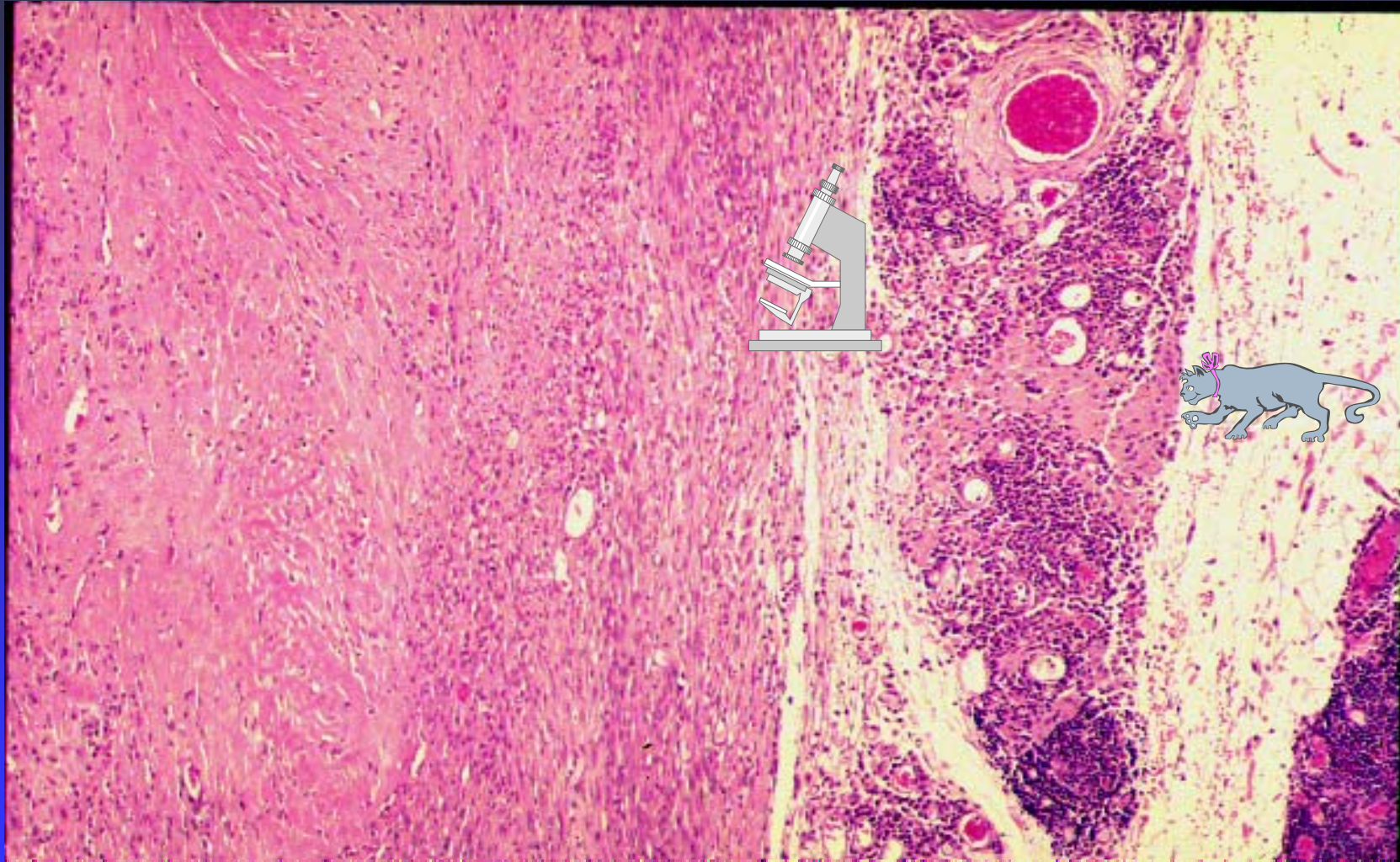
INCIDENCE IN CATS

- Most likely in the range of 1-2/10,000 vaccinations.

SARCOMAS OF MANY TYPES

- ② FIBROSARCOMAS
- ② MALIGNANT FIBROUS HISTIOCYTOMAS
- ② RHABDOMYOSARCOMAS
- ② MYXOFIBROSARCOMAS
- ② LIPOSARCOMAS
- ② CHONDROSARCOMAS
- ② OSTEOSARCOMAS
- ② LYMPHOSARCOMAS
- ② MIXED TISSUE SARCOMAS (MAY BE ONE OR ALL OF THE ABOVE)

CLASSICAL ORGANIZATION AT THE EDGE OF INJECTION SITE SARCOMAS



SPECIES AFFECTED:

- ☺ Cats
- ☺ Canine--rare
- ☺ Horses--rare
- ☺ Ferrets
- ☺ Others

INJECTION SITE SARCOMAS IN DOGS

- MUCH RARER THAN IN CATS—
PROBABLY IN THE RANGE OF
1/1,000,000 OR 1/2,000,000
VACCINATIONS

INJECTION SITE SARCOMAS IN LARGE ANIMALS

- **HORSES: EVEN RARER BUT THEY DO OCCUR.** I have personally seen 2.
- **FOOD ANIMALS: NONE REPORTED!!**

Dr. Kent McClure:

“If a single factor was found to be causing the (sarcomas), (manufacturers) would all say ‘Ah-ha, this is it!’ and then develop vaccines to alleviate the problem. But we are not there yet, and that is why we will see different approaches.”

FINAL VAFSTF REPORT, JAVMA, JUNE 1, 2005

DO MICROCHIPS CAUSE TUMORS IN MICE AND RATS?

LET'S LOOK INTO THIS.

ANOTHER QUESTION THAT COMES TO
MIND-----SO WHAT?

FOREIGN BODY TUMORIGENESIS IN MICE AND RATS

- ① GLASS COVER SLIPS (Ken Johnson et al)
 - ② ONLY IF INTACT (ground up cover slips do not cause tumors)
- ① PLASTIC COVER SLIPS
 - ② ONLY IF INTACT (not if ground up)
- ① PLATINUM
- ① STAINLESS STEEL
- ① QUARTZ
- ① GOLD
- ① CHEMICALLY PURE POLYMERS

FOREIGN BODY TUMORIGENESIS IN MICE AND RATS

- MICROCHIPS (selected studies)
 - ❖ Keith Johnson (1996): <1% tumors. In mice on oncogenicity study >1year. Microchips used as ID.
 - ❖ Tillman et all (1997): .8% of 4279 inbred mice in a study trying to promote tumors with radiation and chemicals. Microchips used as ID.
 - ❖ Palmer et al(1998): 2% of 800 inbred tumorigenic mice
Prevalence for non microchip associated tumors has been reported as high as 12% in this breed of mice.

FOREIGN BODY TUMORIGENESIS IN MICE AND RATS (cont'd)

- ❖ Blanchard (1999): mice with high susceptibility to neoplasia: 18 of 177 (10% tumors) associated with the microchip (used as ID)
- ❖ Elcock et al (2001)---0.7% tumors in 1200 rats on an oncogenicity study (approximately 2 years out). Visible tumors not evaluated histologically. Untreated Controls---no tumors associated with microchips. Microchips used for ID
- ❖ NONE OF THE ABOVE STUDIES WERE STUDYING MICROCHIPS AS THE PRINCIPLE ISSUE.

FOREIGN BODY TUMORIGENESIS IN MICE AND RATS

- ☹️ WOULD BE EXPECTED WITH MICROCHIPS.
- ☹️ HAS BEEN STRONGLY SUGGESTED WITH THESE UNCONTROLLED STUDIES (as a peripheral observation). Low prevalence in studies designed to cause tumors in animals bred for cancer.
- ☹️ Microchips used now are different from many used in the listed studies.

MICROCHIP ASSOCIATED TUMORS IN ZOO ANIMALS

- Egyptian Fruit Bat
- Degu
- Feathertail glider

**MICROCHIP CAUSED TUMORS
IN DOMESTIC ANIMALS THAT I
HAVE SEEN OR CAN CONFIRM?**

NONE!!

NOTA!!

TUMORS IN DOMESTIC ANIMALS WHERE A MICROCHIP WAS ADJACENT TO INJECTION SITE SARCOMA.

- ONE IN OUR LABORATORY
 - ◆ Associated with injection site sarcoma in a cat.

MICROCHIP ASSOCIATED WITH INJECTION SITE SARCOMA IN A CAT



TUMORS IN DOMESTIC ANIMALS ADJACENT TO INJECTION SITE SARCOMA. (CONT'D)

- 5 CASES LISTED IN DOGS (3 in published literature)
 - ◆ 2 FROM VETERINARY PATHOLOGISTS IN ITALY. BOTH WERE IN SITES WHERE INJECTIONS COULD HAVE BEEN ADMINISTERED AND ONE WAS DIRECTLY RELATED TO AN INJECTION SITE.
AUTHOR'S CONCLUSION: BLAME THE MICROCHIP.
 - 3RD WAS DEFINITELY ASSOCIATED WITH AN INJECTION SITE.
- OTHER 2: INADEQUATE INFORMATION TO CONFIRM. 2 tumors listed by the British Small Animal Veterinary Association out of 4 million microchipped cats and dogs.

CONTROLLED STUDIES OF MICROCHIP IMPLANTS IN DOGS

- NO TUMORS IDENTIFIED IN 6 YEAR STUDY. Good fibrous capsule unchanged for 3 to 6 years.
- VASTF (2005)—21 day study showed no inflammation around microchips.

Points of Concern about microchips causing tumors.

- ALL TUMORS REPORTED IN THE LITERATURE HAVE BEEN IN DOGS --- NONE IN CATS WHICH HAVE A HIGHER PREVALENCE OF INJECTION SITE SARCOMAS.
- MANY OF THESE TUMORS ARE ASSOCIATED WITH INJECTION SITES (PROBABLY ALL ARE)
- NO TUMORS ASSOCIATED WITH MICROCHIPS ONLY HAVE BEEN REPORTED IN CATS OR DOGS OR OTHER DOMESTIC SPECIES.
- 5 REPORTS OF TUMORS POTENTIALLY ASSOCIATED WITH MICROCHIPS OUT OF 15-20 MILLION MICROCHIPS IMPLANTED (ENTIRE WORLD)

IN LIGHT OF THIS
PLETHORA OF
INFORMATION, WHAT CAN
WE RECOMMEND?

MICROCHIP RECOMMENDATIONS

- **Microchips have been associated with tumors in rats and mice**
 - **Non controlled studies**
 - **Inert material such as plastic cover slip material will cause tumors in rats and mice.**
 - **Microchips causing tumors would be expected in these species.**
 - **Extrapolation of this data to other species is not appropriate. (stated in some reports)**

MICROCHIP RECOMMENDATIONS

- **If microchips cause tumors in pets or domestic animals then it is very rare!!**
- **5 reports in dogs in the literature/ approximately 20 million chips implanted.**
- **Those that have been reported in dogs apparently were also injected with other materials at the same site.**
- **Not identified in cat sarcoma epidemiology studies.**

MICROCHIP RECOMMENDATIONS

- Approximately 8000 pets / month are returned to owners due to microchips.
- The use of microchips is a “No Brainer!!”
- Removal is potentially dangerous and would be a travesty.
- *If at all possible, microchips should not be placed in a potential injection site location.*

FOR ADDITIONAL INFORMATION:

- www.avma.org

- avma.org

- <http://www.avma.org/reference/backgrounders.asp#microchip>
- avma.org/reference/backgrounders.asp#microchip

THANK YOU FOR YOUR
KIND ATTENTION



ARUP® Laboratories

COMPARISON (HUMAN)

- ❗ Human medicine accepts serious reactions in 1 in 875 children immunized with Diphtheria, Tetanus toxoid and Pertussis (DPT).
- ❗ The most common location for Malignant Fibrous Histiocytoma and Rhabdomyosarcoma in people-- Hip or thigh where childhood vaccinations are administered.