May 31, 2010, 5:42 pm

For Very Young, Peril Lurks in Lithium Cell Batteries

By TARA PARKER-POPE

Last fall, 13-month-old Aidan Truett of Hamilton, Ohio, developed what seemed like an upper respiratory infection. He lost interest in food and vomited a few times, but doctors attributed it to a virus. After nine days of severe symptoms and more doctor visits, the hospital finally ordered an X-ray to look for pneumonia.

What they found instead was totally unexpected. The child had ingested a “button” battery, one of those flat silver discs used to power remote controls, toys, musical greeting cards, bathroom scales and other home electronics.

The battery was surgically removed the next day, and Aidan was sent home. But what neither the doctors nor his parents realized was that the damage had been done. The battery’s current had set off a chemical reaction in the child’s esophagus, burning through both the esophageal wall and attacking the aorta. Two days after the battery was removed, Aidan began coughing blood, and soon died from his injuries.

To this day, Aidan’s parents don’t know where the battery came from. “This is something I would never want another parent to live with,” said Michelle Truett, Aidan’s mother. “I was oblivious as to how dangerous they were, and I want more people to know the danger.”

Such deaths are extremely rare. There were fewer than 10 documented during the last six years. But ingestion of lithium cell batteries, which children may mistake for candy and elderly adults for medication, is a surprisingly common problem, documented this week in two reports in the medical journal Pediatrics.

About 3,500 cases of button cell battery ingestion are reported annually to poison control centers. But while swallowing batteries has occurred for years, the development of larger, stronger lithium cell batteries has increased the risk of severe complications.
Data from the National Capital Poison Center in Washington found a sevenfold increase in severe complications from button cell ingestions in recent years. Moderate to severe cases have risen from less than a half percent (about a dozen cases per year) to about 3 percent (nearly 100 cases per year), based on a review of 56,000 cases since 1985.

Among the serious complications, the chemical reaction triggered by the batteries can damage vocal cords, leaving children with a lifelong whisper. Damage to the gastrointestinal tract means some children require feeding tubes and multiple surgeries. “The injuries are so much more serious,” said Dr. Toby Litovitz, director and lead author of both articles in *Pediatrics*. “It’s like drain opener or lye. It’s not something you want in the esophagus of your child.”

The batteries that pose the greatest risk are those that begin with the number 20, which stands for 20 millimeters. They are newer and stronger than older models. Batteries numbered 2032, 2025 and 2016 are responsible for more than 90 percent of serious injuries.

“Industry has shifted to this battery, and it has very popular appeal,” Dr. Litovitz said. “There are a lot of reasons why we want to use this battery, but the problem is we’ve got to use it in a safer way.” Federal safety rules require toys that use the batteries to have battery compartments that are locked with screws. But devices intended for adults — like bathroom scales and remote controls — often hold the batteries in with a simple plastic cover that can fall off or be removed easily.

That’s what happened when 13-month-old Kaiden Vasquez of Bristow, Va., picked up the remote control to his parent’s iPod docking station. Somehow, he dislodged the battery and swallowed it. But his parents did not notice the missing battery when he began crying hysterically and could not be calmed. Emergency room doctors diagnosed a stomach flu, but a week later the child’s pediatrician took an X-ray and saw what he thought was a quarter. When the round item was removed, doctors discovered the battery and kept Kaiden for observation. The battery had burned a hole in his esophagus and trachea and he required a feeding tube and two months of home nursing care.

Kaiden, who will be 3 in July, has recovered, although severe reflux after the incident damaged his teeth. “I don’t allow any of those disc batteries into my home,” said Kaiden’s mother, Amy Vasquez, who has three other young children. “I never thought a remote would do so much damage to my child.”

Battery ingestion is also a problem among the elderly, who often mistake hearing aid batteries for medication. But in those cases, the battery typically doesn’t get stuck because the digestive tract is larger and the battery used in hearing aids is smaller.

When children ingest batteries, it’s usually not because they found one loose in the home. In 60 percent of the cases involving children under age 6, the child has removed the battery from the electronic device. The problem is that most parents are not even aware when it happens, yet studies show the battery begins to cause severe damage within just two hours of ingestion. “It’s really a tight timeline, because a lot of these cases aren’t witnessed,” Dr. Litovitz said. “Children present with symptoms that are nonspecific, the parent doesn’t know the battery was ingested — that makes it difficult for the doctor to diagnose.”

Dr. Litovitz said the problem needed to be addressed by manufacturers of electronic products, who should secure the battery compartments in all devices, not just toys.

“Children have ready access to remote controls, watches, garage door openers,” she said. “Our major pitch is to get the industry to do something about the battery compartment, but parents also need to know that they need to be dealing with these batteries with a lot more vigilance and keeping them out of reach of the child.”

Cara George of Littleton, Colo., has been working to raise awareness about lithium batteries ever since her
18-month-old daughter, Brenna, died after ingesting one nearly two years ago. “I want to raise awareness for parents, for doctors, for the community,” she said. “I think there should be warnings on every item the batteries are in. They are in greeting cards and children’s books that talk. They’re everywhere.”

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Healthy Consumer, button batteries, choking, infants, lithium cell batteries, poison, toddlers

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From Well

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- The Right Way to Swaddle

We have a new episode of the law of (technology’s) unintended consequences. Warnings on equipment certainly are a misplaced protection for the preliterate child. It should be a simple and inexpensive solution (to the problem of the inability to read warnings) to design a sliding double latch made of hard plastic to lock the equipment control’s battery compartment. It should take two hands to unlatch and, if annoying difficult enough to the buyer of the item, force him to read and understand the directions.

— peter clarke

2. May 31, 2010 6:20 pm Link

Terrible. If only doctors could use the X-Rays without thinking about the cost…
FROM TPP — It’s a little more complicated. You don’t want to expose kids to unnecessary X-rays. In addition, in a few of these cases an X-ray was performed but they looked at the stomach and see nothing — the item was lodged in the esophagus. When you have so little information to go on it’s very hard for a doctor to diagnose. Imagine the sheer numbers of kids who present with crying and vomiting — it wouldn’t be good to X-ray them all. However, spreading the word about the problem will help doctors and parents.

— Camilo Arguelles

3. May 31, 2010 7:03 pm Link

First comment is a good one, but many opportunities for mistaken ingestion will still occur because the batteries will be removed when depleted. Why not also require manufacturers to print universal poison symbol on the batteries. This would help educate users old enough to understand consequences and may provide some help for the preliterate, illiterate or those who do not read the languages the warnings are written in.

— Robin Elkin

4. May 31, 2010 7:14 pm Link

This is an absolute nightmare for the parents.

The Consumer Product Safety Comission needs to step in and regulate these dangerous items. Something along the lines of child safety lids on pill bottles has to be required wherever these batteries are used.

It might also be a good time to take stock and see whether we really need remote controls for every device in our homes.

— Peter Piper

5. May 31, 2010 7:55 pm Link

In our enthusiasm to have every object wireless, we have become battery crazy. Convenience has trumped the need for safety. We never question anything until a tragedy occurs. Being paper-free and wire-free are often mistakenly equated with environmental soundness. All those electronic devices, flourescent light bulbs and batteries of all sorts , in addition to the lithium ones, are toxic and not easily disposed of. We have merely traded one kind of poison for another.

— CL

6. May 31, 2010 8:18 pm Link

@ CL:

Sticking a fork into an electric receptacle is dangerous too. In this misguided zeal for a “zero risk”, nanny state society, would you rather we give up everything using electricity , and revert to a paleolithic, hunter-gatherer lifestyle?

Oh wait … they used fire, someone might burn themselves … better to pull up the covers and never get out of bed …

— Kirth Gersen

7. May 31, 2010 8:51 pm Link

I question the editorial judgement of this blog to focus on such a rare phenomenon.
Something that kills less than 10 children in 6 years ranks very, very low in the priority list. By comparison, lightning strikes killed 1318 people over a 15 year period — a rate more than 50 times higher.

Why not take the same time, energy, and resources that went into this column, and put them into encouraging vaccinations for kids, or teaching kids to wash their hands, or installing safety car seats for toddlers, or any number of other health and safety matters?

FROM TPP — I’ve written about all those issues in the past. This is a new and emerging threat about which parents need to know. The death rate is low but when very young children ingest these batteries, there is a 13% rate of serious injury. That’s extraordinary for a preventable problem and worth writing about.

— MT

8. May 31, 2010 8:57 pm Link

this also happened to our daughter, hazel when she was 9 months old. she also got the battery out of our DVD remote. it wasnt detected for a week, despite a pronounced stridor, wheezing, vomiting, fever, bleeding nose, coughing up blood, respiratory distress among other high-alert symptoms. the battery was logged in her esophagus. after it was removed, she was intubated for 8 days and suffered many, many complications. we got through it, and hazel is now 2 1/2 years old, happy and healthy. what michelle and cara went through is beyond the worst nightmare for a parent. there are no words to describe our heartache for their families, but we are so incredibly proud that they are getting the message out to other parents. this is so preventable, and should NEVER happen to anyone else.

FROM TPP — Thanks for taking the time to share your experience. It is good to hear of a child who recovered from this terrible accident.

— Amanda Donovan

9. May 31, 2010 9:03 pm Link

Beware the little silver candies that fall out of equipment.

— Papa/Victor

10. May 31, 2010 9:19 pm Link

TPP writes: “This is a new and emerging threat about which parents need to know.”

Respectfully, I disagree. Or rather, I would agree with you if public health advocates had already significantly reduced or eliminated childhood deaths from causes such as the ones I listed. These other mortality events are just as preventable and have much higher prevalence and mortality rates.

Just to make this clearer: If you had written (yet another) a column about how to help deter kids from smoking, or how to handle getting caught in a lightning storm, the incremental benefit from your repetition would likely have prevented more childhood deaths and bodily injury, than you did with this blog posting.

Of course, it’s your blog, and it is your choice what to write about. As a reader, I would ask that use the platform you have to help achieve the greatest good for the greatest number.

— MT

11. May 31, 2010 9:49 pm Link

As a clinician, I am fully aware of the danger of button batteries. However, there is no way to distinguish
the symptoms from those of a cold or stomach flu. How does your article help me or parents? Without Xraying everyone, which is not feasible for the reasons you pointed out above, how are we to diagnose this? And how exactly does this help parents? Would you recommend banning button batteries?

FROM TPP — If I had a small child in my home, I’d do a search to find where the button batteries are, and then I’d put duct tape over the cover. As for doctors, some of the doctors in the cases described weren’t aware of the seriousness of the risk. In the case of Brenna, they waited for 14 hours to remove the battery after seeing it on an Xray. She died on her way to the operating room.

— Jen
12. May 31, 2010 11:45 pm 

I have to agree with poster #7 – MT. Working in a branch of pediatric healthcare, I too was surprised that this bog would focus on an issue that, in my opinion, is not as much of a threat as say, pesticides in daily living, or avoiding mercury in foods, or the harms of too much television on learning, etc. I fear that we’ve become a society that needs warnings and limitations on everything. Can we not simply look out for ourselves and those we care about?

If you have a young child there is no reason to leave anything out that could be a danger for choking or swallowing. Just as we tell older brother Johnny to keep lego’s out of the young baby’s way, we should also tell ourselves to put away the Xanax pills, tiny batteries, and tiny parts to this and that. This is not that hard people. We did not need a special article to tell us this.

— Mels
13. May 31, 2010 11:52 pm 

While this clearly was a serious problem for the kids affected, the tiny number of cases suggests that we don’t need widespread regulation, or wholesale claims that we’re “battery crazy.” It’s always good to be aware of risk, sure, but why not take responsibility for childproofing your home? Get some strong tape and tape those battery covers shut while your child is very small.

FROM TPP — I wasn’t even aware of the risk and it’s such a simple thing to correct.

— D Thompson
14. June 1, 2010 12:29 am 

Why not make sure these batteries cannot be accessed without the use of a screwdriver? This sort of system is used on kids toys, why not on other electronic devices? If you have something that has a battery like this and is not secured with a screw, keep it out of your child’s reach. Yes, it really is that simple. Your kid does not need to play with any sort of remote. Learning how they work at such a young age is not important to their development.

— ecotopian
15. June 1, 2010 12:40 am 

I think that the person you responded to above had a good point – If the death rate isn’t high compared to things that we don’t consider a threat, then it’s not a serious threat.

Your comment doesn’t really counter his argument. It may be true that there’s a “13% rate of serious injury,” but a 13% chance of serious injury when ingested isn’t enough to make small lithium batteries a serious threat.

Only sufficiently high death and injury rates can make something a serious threat. If lithium batteries had a 100% chance of causing serious injury when ingested, for example, they wouldn’t be a serious threat if
they were never ingested. And if lithium batteries had a 1% chance of causing injury when ingested, they
would be a serious threat if they were eaten by 100 children every minute.

This article did not make me worry about the safety of America’s children.

— Jonathan Lerner

While these deaths are tragic, I agree with the comment regarding the nanny state. There are far more
risks out there for children without the government having to tell manufacturer how to build their
products.

If we really want to save lives, we should pass and enforce laws against cell phone use and texting in cars.
We would probably save more than 6 lives in a week.

— CF

My father, then 85, was happy and secure in an assisted living facility. He wore in-the-ear hearing aids.
Either he or an attendant put the hearing aid’s lithium batteries in his ears instead of the device. It took
several days for pain to develop to signal something was wrong. His ears were swollen and I immediately
took him to his doctor who discovered the problem. The burns and subsequent infection were so deep that
he had to have the infected bones and tissue debrided many times to control the injury, in spite of
excellent medical care, the infection raged on and he succumbed to infection six months later.
No one should die this way.

FROM TPP — Yes, this is terrible. People with hearing aids often remove the batteries at the end
of the day to preserve the battery life, but the batteries are sometimes mistaken for pills or the
hearing aid itself, and either swallowed or inserted in the ear directly. As your story shows, they
can do a lot of damage. Thanks for sharing your experience and I’m sorry for your loss.

— Sharon

I see a need for someone to invent a childproof battery compartments. If you get rich, send me a check. :P

— JesterJames

Ms. George mentions that the batteries are in children’s books. Sounds like something that needs to be
taken off the market immediately.

— Jen BOE
CL, these batteries are not simply artifacts of a wireless society. Every computer contains one of these button batteries to power the clock when the computer is off.

Amy Vasquez must never reboot her computer, or she resets the clock every time she does.

Awareness is the key, and I agree with the earlier poster who said that a skull and crossbones on the battery might be prudent. But restricting such a useful item from the marketplace would be throwing the baby out with the bathwater.

— Dan Adams

Ms Parker-Pope -

Thank you for the valuable information, I hadn’t even considered it as a problem.

And don’t let the Tea Bagger boneheads, discourage you. Hopefully they’ll all choke on little batteries, since they had problems reading.

Regards,

D

— D from G

Ugg. Not something else! It’s insane to try and keep up with all that small children get into. These things will tend to happen no matter what. My 8mo old just swallowed one of those light bright pegs and we’re still hoping it will come up…eventually

— violet

I am tired of the “nanny state” mentality of the New York Times.

The NY Times quest for life with zero risk is beyond the level of the absurd.

Life is inherently dangerous.

As others responding to this story have pointed out there are a lot more “deadly” things to think about banning than batteries for remotes.

So I’ll add a few.

For example banning automobiles.

Autos kill and maim roughly 35-50 thousand people a year.

Let’s get those killers off the roads, so we all can walk everywhere, in any direction, on any road, without worrying about getting run over. Of course it will no longer take 5-7 hours to drive to Boston, but instead, it will take at least 7-10 relaxing days of walking along on I-95.

How about banning bicycles because somewhere around 700-800 individuals are killed each year while riding bicycles?.
How about banning trains, that eco friendly technology that moves a ton of freight 420 miles per gallon of diesel fuel?

Trains kill approximately 500 people a year in North America (and that is only for the big railroads and not other forms of rail transit).

How about banning public transit systems, that is all subways + Els, Light Rail and buses. as collectively they kill more than most transit managers will ever admit.

For example the New York City Subways alone, killed about 23 in 2007…..a totally unacceptable number.

Where is the New York Times on those 23 deaths alone? And all in one year? . Why isn’t it calling for more regulation and or outright banning of subway ridership because 23 deaths are 23 deaths way too much.And remember that number does not count the deaths inflicted upon riders from other riders.

While we are at it, let’s ban the electric lighting and related appliances in our homes, as each year, somewhere between 400-500 die from home current electrocution each year.

Of course then we would have to go back to candles, kerosene lanterns and fireplaces. But then, as the US National Fire Protection Association suggests, we will end up with one of the leading sources of residential fires for many more of us….and I suspect a few more would die, as a result.

All in a quest to make our lives perfectly safe..

New York Times, will you find reporters who are actually adults and not frightened ninnies, who you seem to enjoy paying to write fear mongering stories.

Now you know why, less and less I read the times, and get my news directly from the internet.

Your paper stopped being a “must read” a long time ago. Articles such as this one would have been “spiked” by a responsible editor as recently as 25 years ago.

— aaa
24. 24. June 1, 2010 4:08 am Link

LITHIUM: THE ELIXER OF HEALTH WITH SERIOUS POTENTIAL DANGERS

The dangers of the lithium battery you describe are alarming but mitigated by the low frequency of occurrence.
The remedies you cite seem reasonable. Risk is part of life — and the battery seems to present a low degree of danger.

Lithium, a light metal on the periodic table has an interesting history vis-a-vis psychiatry. In 1948, Austrailian psychiatrist John Cade who worked in a ‘backwards’ hospital and had about 10 intractable cases of bipolar disorder (then called ‘manic-depressive psychosis’); patients who had rhs serious and dysfunctional disorder had been institutionalized for at least a decade. Nothing worked.

He tried a compound containing lithium and after a few weeks, five went into remission and went back to work; the other five improved markedly. Amazing!

It began to be used widely and helped about 75% of people so diagnosed. Then came the deaths and it was now verboten.
But, what was determined is that lithium had a narrow window of effectiveness. If the dose was too low: no amelioration; too high: serious side effects including death.

So, now when a bipolar patient is prescribed the medication, a blood test must be given periodically to measure the level in the person. To both be effective and not dangerous the level should be between about .8 and 1.2 as behavior is measured as well.

Lithium is in my opinion the medication of choice for most bipolar patients. One of the great discoveries in medicine in the 20th Century.

The battery situation is quite different — but, both situations demonstrate that as a knife can be used as a useful and effective tool — it can also kill.

With any new discovery or invention go slowly. That’s why the scientific method is so vital.

— David Chowes, New York City

25. June 1, 2010 4:27 am

Comment #3 discusses batteries that are removed when “depleted”, in other words no longer work, but the danger described in the article comes from electric current from still-working batteries. Thus child-proof closures would be effective, and the Consumer product Safety commission should require them.

As for the “nanny-state” remarks by #6, it seems absurd in this case. It would be a very mild inconvenience to have items with such batteries child-proofed, and a government regulation to that effect would certainly help. Parents do cover electrical outlets, but they can hardly seal off batteries they don’t know about.

— Michael G

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For Very Young, Peril Lurks in Lithium Cell Batteries

Button cell batteries like those found in remote controls and bathroom scales are a little known health hazard to young children.

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An Objective Test for Attention Problems

Children with attention-deficit problems typically are diagnosed after a parent or teacher raises concerns. But many critics say the disorder is diagnosed too often, prompting calls for a more objective way to measure A.D.H.D.

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Old Is the New Happy

In terms of feeling contented, 18 doesn't hold a candle to 85, a nationwide poll has found. Researchers aren't sure why.

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Feeding Fido and Fluffy

Are people who invest in high-end pet foods are getting their money's worth? Are their pets really healthier and happier? Jane Brody explores the world of high-end pet food.

May 28
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Paying for a Louse-y Problem

In today's Patient Money column, Walecia Konrad writes about the great expense parents often go to in order to rid their child's hair of lice.

Comments of the Moment

“ Here's to more good hair days!! ”
— marianne traina

A Return to Normalcy, for All to Admire

“ As an elementary school teacher, I have seen young children playing together with a look of such drunken bliss on their faces.... It is thrilling to see this love effect with such purity and innocence.”
— jt

Love on the Global Brain

“ In ancient times cats were worshiped as gods; they have never forgotten this. - Terry Pratchett”
— amy

Is Your Cat Normal?

“ My cat likes to type at my computer keyboard. He typed this today: ';lokijyhtjgf":.;lkjiuhygfr ”
— Malt Yurt

Is Your Cat Normal?

“ Is there anything worse than cat people? Seriously.”
— Creegah

Is Your Cat Normal?
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Six men and women discuss living with migraines.

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- The Voices of A.L.S.
- The Voices of O.C.D.

Confronting Cancer

Dana Jennings

Dana Jennings blogs life after prostate cancer.

- A Dog, a Buzz Cut and Other Cancer Stories
- At Home in Solitude as a Spirit Recovers
- A Funny Thing Happened on the Way to the Cancer Clinic

Eat Well

Popcorn's Dark Secret
Movie-theater popcorn has an alarming amount of fat, salt and calories in even the smallest sizes.

- A Makeover for Food Labels
- Popcorn’s Dark Secret
- Mark Bittman's Top 12 Make-Ahead Dishes

Well Pets

Best Walking Partners

Having to walk a dog can help people be more consistent about regular exercise.

- The Cat Who Got Swine Flu
- The Value of Pet Therapy
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A Guided Tour of Your Body

Changes in our health are inevitable as we get older. What do we need to know about staying well as we age?

- Health Quiz
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